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Addresses.

THE TRANSPORTATION OF THE WOUNDED.*

BY EDMUND L. GROS, M.D., PARIS, FRANCE.

Mr. President, colleagues, ladies and gentlemen: I am to discuss today the question of transportation of the wounded, which is one of the problems of modern warfare—perhaps the greatest. Compared to the progress which has been made in perfecting the means of destruction there is no question that the methods of evacuating the wounded are certainly very crude and open to great improvement.

The advent of the automobile should have been the means of simplifying and ameliorating these methods and of making military sanitation equal to emergencies of modern war.

As we shall see, this has not been the case, because the railway is still the main medium of transport, and motor ambulances are not utilized to the extent that they should be.

One of the main reasons why the evacuation of the wounded is often so badly carried out is that the lines utilized for this transportation are often the same as those that are used for the conveyance of troops, food and ammunition. This has given rise to that implacable formula so often quoted, *Ammunition first, food second,*

wounded third.

This, to my mind, is a cruel, senseless and useless maxim. How many human lives have been sacrificed to it!

The task of evacuating the wounded at its best is undoubtedly a complicated one for many reasons: There is no work which undergoes such unexpected and startling variations. On certain days, the number of wounded to be evacuated (as was the case some weeks ago) did not exceed 300 all along the French front, while again there may be 10,000 or 20,000, or even more, in a day, as in the battle of the Marne. What still further hampers the *Service de Santé* is that the greater the number of wounded at a given point the more difficult the evacuation becomes, because of the congestion of the various lines of transportation.

When one fully appreciates the tremendous difficulties which confront the military surgeon in his work at the front, one can but admire his courage, his devotion and his resource. Our experience in the transportation of the wounded teaches us that there is a vast difference between theory and practice. When one opens a book on the subject—"Troussaint's *Service de Santé en campagne*"—or any other treatise on the subject, one finds a great many precise rules and regulations dealing with the transportation and evacuation of the wounded. The handling of the wounded becomes apparently a question of military tactics. It would seem to be a very simple matter, but how different are the actual facts! There is no other service which is subject to so many daily and hourly variations and in which the conditions are so constantly changing.

We all know that there are three different

* Read before the Medical Society of the American Ambulance Hospital of Paris.

phases in the movements of an army or of a battalion: It may *advance, remain stationary, or retreat*. The various military operations are, of course, capable of all sorts of variations, any one of which may in a moment create for the Sanitary Service situations of the greatest difficulty.

If the army advances, the situation is very simple, because the wounded become each minute further removed from the enemy, and it is comparatively easy to handle them. When the army remains stationary, as in the present form of trench warfare, the situation is also very simple, because the Sanitary Service has ample time to organize its work.

But when the army is in retreat the difficulties begin. The enemy advances with more or less rapidity, and the *Postes de Secours* and the field hospitals must be evacuated without delay. Frequently the patients can be removed to the rear, but too often the evacuation cannot be effected rapidly enough, and the wounded must be left where they are in charge of one of the surgeons who remains behind. Many of them fall into the hands of the enemy.

These three phases have already been exemplified in this war:—

1. The retreat from the north after the battle of Charleroi.
2. The advance during the battle of the Marne.
3. The stationary situation created by the present trench warfare which has lasted for so many months.

The allies were unfortunate in having the most complicated situation to cope with at a time when the sanitary organizations were least able to meet it. I cannot report personally how the wounded were transported at that time. There is no doubt that a large number fell into the hands of the Germans.

Our actual experience began with the German retreat in the battle of the Marne—the advance of the Allies. At that time the problem which confronted the Sanitary Service was twofold: The hospitals of the North had to be evacuated, and in addition, some 112,000 men who fell during this memorable battle had to be transported to the various hospitals. This, too, came at a time when the *Service de Santé* was still badly prepared for its work. Ours were the only ambulances which were ready at that time. Our souls were harrowed by tales and sights never to be forgotten—hundreds abandoned without food and drink for days in half ruined churches or schools, or again lying on straw in shunted cars which could not be sent forward on account of the railway being used by ammunition and troop trains. The mere mention of the battle of the Marne evokes souvenirs of the many expeditions we made to Meaux, Lizy-sur-Oure, Crèpy-en-Valois, etc., and it is hard to refrain from recalling here some of our experiences.

It was during this period that we gained much

of our experience in transporting the wounded from the advanced lines. We were kept very busy, our motor ambulances being the only ones which were in readiness to respond day and night to the calls of the sanitary authorities.

Before describing the various means of transportation I wish to say a few words about the obligations which we owe to the wounded. When we see the wounded arriving at our door we are too apt to look upon them as subjects to whom we intend to give the best of care, but for whom we do not have the keen, deep human sympathy which we should feel, did we but realize the physical and mental suffering through which they have just passed. It is well for us to remember the agonizing hours spent on the battlefield, and the complicated and nerve-racking journey which has finally landed them at our doors.

Dr. du Bouhet spoke very feelingly at our last meeting of our duty to the men who have fought bravely for their country. Our duty should begin not only with the treatment given them to alleviate their physical suffering, but the very minute we meet them. These men have left their homes, their occupations, their wives and their children to lay down their lives if need be for their country. They have fulfilled their duty to society, and our obligation to them, the humblest of them, is to treat them with the greatest gentleness and patience.

In order to evoke in your minds a complete picture of that journey (which so often, alas! ends in a tragedy) which the wounded soldier takes from the firing line to our hospital, let us start on the battlefield itself. For a description of what generally happens on the firing line I am indebted to our military colleague, Dr. Perrin, who was wounded near Arras, in the accomplishment of his duty, and who, fortunately, has almost regained his health in the American Ambulance.

I think there is great interest in following the wounded soldier from the battlefield until he reaches the point where our base hospital comes in contact with him. If he is wounded in the open, he falls on the firing line, and tries to drag himself to some place of safety. Sometimes the fire of the enemy is so severe that he cannot move a step. Sometimes, he seeks refuge behind a haystack or in some hollow or behind some knoll. Generally a number of wounded will collect in the same place. This is called by the picturesque name of *nid de blessés* or "nest of wounded." If the artillery or rifle fire is particularly severe, they will remain here till darkness comes on. In the meantime they apply a dressing to their wounds or have them dressed by some comrade. Under the cover of darkness, those who can do so, walk with or without help, to the *Poste de Secours* or First Dressing Station which, in open warfare, is situated from 500 to 1000 metres from the firing line, generally in some protected spot. As we shall see later on,

in trench fighting the *nid de blessés* becomes the *Poste de Pansement* in a third line trench.

Of course there are various ways in which the wounded can get to the *Poste de Secours*. Stretcher-bearers are sent out to collect the severely wounded. Sometimes mules are used, with an arrangement of side-seats called a *cacolet*, or a two-wheeled push cart similar to the Japanese *pousse-pousse*. This vehicle is of the greatest service when the roads are good, and Dr. Perrin recounts that he succeeded one night in transporting 18 badly wounded soldiers from a spot 50 metres from the German lines to a point several kilometres back, in a very short space of time.

The wounded are not kept very long at the *Poste de Secours*. Their wounds are dressed, and in the case of fractures, improvised splints are applied, and the patients are evacuated as speedily as possible. This is accomplished by a system of ambulances, which operate from another service called the *Service de l'arrière*, but the number of motor ambulances is wholly inadequate, and this is a serious flaw. I am told that frequently the ambulances do not make connections, and that the surgeon of the battalion in charge of the *Poste de Secours* must get his wounded out as best he can, requisitioning for this purpose the peasants' carts and wagons. The dressing station does not part with its stretchers, so the wounded are placed on straw spread on the bottom of these carts without springs, and thus they are conveyed during five or six hours before they reach the sanitary train or temporary field hospital. What torture many of them must endure, especially those with multiple fractures!

This description applies to open warfare such as existed in the early stages of this war. The sanitary service, as well as the combatants, has been obliged to adapt itself to these new and strange conditions, and I am quoting from Ferraton, who describes the practical workings of the service under his direction.

The hardships of the soldier in this trench fighting have been shared by the military surgeon and his associates, and one must express the highest admiration for their coolness and courage under most trying conditions. Here, there is no Geneva convention. The medical corps is exposed to the enemy's fire in exactly the same degree as the soldiers. The military surgeon, as well as the stretcher-bearer, remains behind the combatants, in third line trenches, in trench-rooms, covered with transverse logs and sod. As soon as a soldier is wounded, the stretcher-bearers go to get him by means of the communicating *coulloir* or trench. The ordinary stretcher is too long to be used in the tortuous and abrupt angles of these trenches. It has been found more convenient to use a sort of a palanquin made by suspending a canvas sling from a wooden pole. An ordinary chair is often the most convenient means for transporting the

wounded from the first trench to the so-called *Poste de Pansement* (dressing station). This *Poste de Pansement* is often situated in a second line trench.

In this subterranean room, dimly lighted, the dressings are applied, splints adjusted, hemorrhages arrested by means of an Eschmarch bandage, and warm drinks given. There is generally at least one of these *Postes de Pansement* to each battalion. As soon as the shelling permits, the wounded must be carried to the *Poste de Secours*, which is generally situated a hundred yards or so in the rear, in some house. The wounded are carried to the heads of the communicating trenches, and at a favorable moment, transported on litters, either with or without wheels. At the *Poste de Secours* some immediately urgent operations may be performed, such as ligating for hemorrhage, tracheotomy for threatened asphyxia, etc. At this point ends the regimental service, and the divisionary surgeon takes charge. He has disposal of various horse-drawn ambulances or two-wheeled push carts.

In one particular division described by Ferraton (Société de Chirurgie of 16 March) the *Poste de Secours* was in a subterranean chamber hidden under a hay stack, and another was situated in the cellar of an abandoned house; in each case relatively safe from the shells which were bursting all around.

From the *Poste de Secours* the wounded are carried to the so-called Ambulances, of which there are two kinds:—

1. The first line divisional ambulances.
2. Ths ambulances of the second line (*Ambulance de Corps d'Armée ou de deuxième ligne*).

The first line ambulances, which, during the prolonged trench warfare have remained stationary, are generally, under ordinary circumstances, very mobile. The whole service can be packed on a few horse-drawn carts. They possess no beds, and are generally established in abandoned houses, the wounded being placed on clean straw. The duty of these ambulances is to receive the wounded sent by the regiments, perform the most urgent operations, but, more particularly, to make a choice of the wounded for distribution, hence the name *Ambulance de Tri*.

1. The slightly wounded are kept near the front.
2. The moderately wounded, who can stand a long journey, are sent to a sanitary train.
3. The very seriously wounded, who can only be transported a short distance, are sent to some neighboring ambulance.

The first group will be transported to a *dépôt d'élopés*, the second to the evacuation hospital of the army corps, and the very severely wounded to a neighboring fixed surgical ambulance.

This latter is what is called a second line ambulance. It is situated in some neighboring village where there are comfortable buildings, and

where a good surgeon can perform many urgent operations on abdominal and head cases.

These hospitals may have a capacity of 50 to 100 beds and would quickly become overcrowded if the patients were not being constantly evacuated, either by means of a sanitary train to a base hospital, or, if too weak, to some surgical hospital of a neighboring village. The wounded have, therefore, successively passed by the Dressing Station (*Poste de Pansement*), the *Poste de Secours*, and the Distributing Ambulance (*Ambulance de Tri*). In this latter place they may remain not over 15 hours, often only a few hours, and from here, according to the gravity of their wounds, they are transported by horse-drawn vehicles or motor-ambulances to the *dépôt d'éclopés*, the evacuation hospital, or the ambulance hospital. If the service is well done, the wounded are delivered at the ambulance hospital from four to eight hours after having been picked up, and, in many cases, within two to three hours.

At the immobilized ambulance hospitals, the badly wounded cases are supposed to be kept, i.e., the head, chest and abdominal cases. The others are forwarded to the sanitary trains or canal boats or sanitary ships to be distributed according to the gravity of their lesions to more or less distant hospitals. The head station of these sanitary trains is called the *Gare d'Origine d'Etapes*, and the station of arrival is called the *Gare de Répartition*. There are two such depots in Paris, the *Gare d'Aubervilliers* and the *Gare de la Chapelle St. Denis*, with which our ambulance drivers are very familiar. This latter station, where sometimes 2000 wounded arrive in a day, is in charge of Dr. Quénau and is admirably organized.

This is where I shall try to prove that the methods of transportation could be greatly simplified by a better use of motor ambulances. You see how complicated the machinery is for transporting the wounded from the firing line, and how important it is that every stage of that complex journey should be carefully planned and carried out. By the judicious use of motor ambulances much of the changing from one vehicle to another would be obviated.

I must here give a short description of various

forms of motor ambulances, and I must be forgiven if I speak a little more in detail of our Ford ambulances which have stood the test of nearly six months' steady use, both in field and base work.

In the early part of the war, whilst the committee was organizing this section of our American Hospital, I remember one day, on coming from a committee meeting, at the offices of the American Radiator Company, in Bd. Haussmann, seeing one of these cars standing in front of the door, the chassis being furnished with crude ambulance bodies made from wood of packing cases. It was a surprise to us. We knew they were being built, but we did not expect they would be ready so soon. I remember my emotion when Dr. du Bouchet and another member of the committee rode round the block, whilst we anxiously awaited their return and their opinion. The car was pronounced most comfortable, and it has since justified that verdict.

That was the first appearance of the Ford ambulance, and while some modifications have been made as to the details, the principle remains the same. The advantage of this car for work at the front is at once apparent. Its lightness, its exceptional clearance from the ground, and the power of its engine make the car a perfect one for work immediately behind the firing line. In the North, when the roads were muddy and bad, it was the only car which could get off the road into the mud to allow a convoy to pass and yet get back upon the road without the aid of a tow-rope. In the East, in the Vosges mountains where one of our sections is working in Alsace, they take the hills so well that the French soldiers have nicknamed them "the goats."



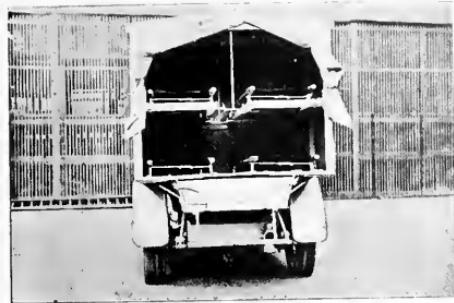
Though we have not modified the general shape of the ambulance, we have gradually improved the model, with regard to the comfort of the patient and also of the drivers. We found that a third stretcher would be of help, and this has been supplied. This emergency stretcher is placed on a wooden frame, which can be either strapped out of the way against the roof of the car, or secured in the center of the car above the other two stretchers.

Three lying-down cases are all that a Ford car can safely carry over rough roads without straining the springs. As for sitting cases, four can be accommodated in each car. At first we



allowed the wounded to sit on the floor with their backs against the sides of the car. Then we thought seats would be better, and we now have two transverse seats for four sitters.

So far as the Ford is concerned, I feel that it has a great future as an ambulance. In the transportation of the wounded the patients are most comfortable. At present, the wounded are being transported over 60 kilometers over rough roads to our branch hospital, at Juilly, and the men all declare that they much prefer to ride those forty miles to the journey of eight or ten miles which they had to make from the front to the first clearing hospital in such vehicles as I have just described—springless carts, etc. In fact, many of the men fall asleep in our ambulances during the journey to our hospital.



The larger cars of the Daimler or Wolsley types, carrying four lying to six or eight sitting, are good for base work, but they are too cumbersome to be able to run very close to the front. On the other hand, the Ford, with its low outline, can creep very close to the firing line without attracting the fire of the enemy.



To resume, motor-ambulances may be made to carry two, four or six lying cases, or from four to eight sitters. The stretchers may be pushed into the car from behind or from the sides, as in the Austrian model, and in a new ambulance invented by Com. Denain, of Versailles, which is now being made for the French Army, of which I am showing you an illustration.

This new ambulance is very ingenious and very practical. It loads from the side. The

whole frame supporting the four stretchers rests on two transverse buggy springs, which absorb the shocks and make riding over rough roads



very easy, obviating longitudinal or transverse vibrations. All these points may seem trivial, but they are of the utmost importance so far as the comfort of the patient is concerned.



Many systems of suspension of stretchers based on spiral springs do not take this into account. I have several times tested this form of suspension by riding around over rough roads—and have found the vibrations most disagreeable, and realized how agonizing such a trip would be to those suffering from fractures.

The same criticism applies to the three-stage apparatus installed in so many of the sanitary trains. I refer to the Breehot-Deprez-Ameline



suspensions in which the stretchers are also supported by spiral springs.

The conclusions are obvious: the greatest comfort of the patient is obtained when the stretcher

is placed directly on the floor of the ambulance (as in the Ford), on rails (as in the Daimlers), or on rigid arms (as in the Denain). If placed on springs these must not allow of a transverse or longitudinal movement, but only of a vertical one.

In the transportation of the wounded the comfort of the patient should always be the first thought. The most painful injuries are compound fractures of the femur, and transportation is almost impossible unless the limb has been immobilized in some way. In our experience, the following simple appliance which Dr. du Bouchet taught us to use, was found invaluable. It consists of a double pillow filled with excelsior, which is placed round the limb and held in place by means of wooden splints, the whole secured together by means of straps and buckles.

I was impressed with a metal extension splint which Dr. Blake demonstrated to us at our last meeting. I believe this would bring even greater comfort to the wounded than our splint pillows.



The necessity of keeping the wounded warm during transportation is of paramount importance. It must be remembered that these poor men are generally suffering from traumatic shock, and that they easily get chilled. Even though they are covered with blankets, they lie on the cold canvas of the stretcher, with no blanket under them. We, therefore, tried to find a method of heating the car, and to keep the cold air out we secured the canvas sides and back. One of our members tried to utilize the heat of the exhaust pipes to warm the inside of the car. Though our experiment was not a success through a mechanical error, I am quite sure that the idea is a good one and could be worked out if the season were not too advanced for heating to be necessary.

In most cases sufficient heat can be obtained from a hurricane lamp which is kept lighted, suspended from the ceiling.

Now let me say a few words about sanitary trains, of which, as you know, there are three kinds: the *improvised*, the *permanent*, and the *ordinary passenger* train used for the sick or slightly wounded.

Unfortunately, our experience during the battle of the Marne taught us that there was a fourth train used for the transportation of the

wounded, though it could hardly be called sanitary. This was composed of cattle cars which had been used for conveying horses to the front.



Of course the military operations were such that there was no time for any attempt to establish a sanitary train. Straw was spread on the floors of the cars and the wounded placed on it. It was at that time that so many of the wounded contracted tetanus and developed gas gangrene. Many lives would have been saved if



a little time had been taken to clean and disinfect the floors of these ears before placing the wounded upon them.

The most common train is that composed of baggage or cattle cars with the Breechet Ameline apparatus in either end, consisting of three tiers of three stretchers each, each car carrying eighteen wounded. In winter a little stove is placed in the middle.

The best train that I have seen is composed of second or third class compartments, with lateral doors, which permit the stretchers to be easily carried in and out (but it must be recalled that portières vary in width of opening, many of them being too narrow to permit of the passage of a stretcher).

The carrying capacity of these trains is 250 to 350 wounded, about four-fifths of which are sitting cases; in other words, there are but 60 to 70 lying cases in each train. There are about 20

orderlies, and one surgeon (rarely an assistant surgeon) to each train.

Unless the cars are intercommunicating, the surgeons can inspect his cases only at the stations, and these are sometimes three to six hours apart. This means that the wounded are practically without medical supervision during the whole duration of the trip, and when the train reaches the "*Gare d'évacuation*" or Distributing Station the methods of determining the gravity of the wounds are wholly inadequate. Fortunately, this service has been greatly improved.

Another defect in the system is the method of feeding the wounded. Often there is no provision for feeding them on the trains, and this is carried out at the stations where the infirmaries are established. Here the soldiers are stuffed with unsuitable eatables often, which causes indigestion and other troubles for those who are unable to take solid food.

The already lengthy journey is made almost interminable by frequent stops. The speed of the train is almost 40 kilometers an hour, and the trip from Amiens to Bordeaux, for instance, would take 48 hours. If the feeding of the patients was attended to on the train, the duration of the trip could be reduced one half. This has been tried recently on some of the trains with success, a restaurant car being attached for the feeding of the wounded and the personnel.

I want to speak of a little experience which I had (but fortunately this condition has been corrected now). I have seen a surgeon going from ear to ear, simply asking the orderlies if any of the men complained. If none complained (and do we ever hear these brave soldiers complain?) they were allowed to remain where they were and sent on to some more or less distant hospital in the provinces, many deaths resulting from the delay.

Another means of transportation is the canal boat or *Péniche Sanitaire*. I have had no experience with this method of transportation, but it seems to me that its great objection is that it is very slow and keeps the wounded from reaching a well-equipped hospital quickly.

I saw some magnificent sanitary ships at Boulogne, used to transport the British soldiers to England. This is undoubtedly one of the best means of evacuating the wounded, particularly when the sea is calm.

To resume: The conditions to be met in the transportation of the wounded are *comfort*, *speed* and *safety*. The first two we have dealt with, and the question of safety I will now consider. Safety implies not only the proper treatment of their wounds, but also the proper precautions against danger of contagion from the medical cases.

In the beginning of the war there were practically no medical cases, but as the war goes on, the medical cases, among which is a large proportion of contagious diseases, are increasing in number. At least one-half of every sanitary

train is composed of medical cases. They try to separate the contagious cases in the train, but it is very difficult to carry out this isolation when the surgical and the medical cases are not kept entirely apart. This defect in the transportation system is a very serious one.

To distinguish the cases readily, the soldiers should be carefully tagged with cards of different colors; for instance, *red* for surgical, *blue* for medical and *yellow* for contagious cases.

Having described, very imperfectly, the various methods of transportation now in use, I want to say a few last words on what I consider would be the ideal method of evacuating the wounded from the front. I should like to see the trains used only for the lightly wounded and medical cases, while the severely wounded should be conveyed by motor ambulances directly from the firing line to the temporary or even to the base hospitals.

This plan should be realized by the use of motor ambulance convoys attached to each army, and assuring a regular service between the first dressing stations or first clearing hospitals, and a base hospital. This would do away with the various and painful changes, the exhausting waits and the inevitable delays. I am sure that this would mean the saving of many lives.

I have already been too long, and there is no time to describe our own ambulance organization. Suffice it to say that it is fitted for just such work. Our units of 20 ambulances with a staff car and a repair car could be multiplied ad infinitum, and would be admirably suited for this convoy work.

It is with legitimate pride which should be shared by all Americans, that I am able to report that our various ambulances driven by volunteer Americans, have carried to date over 26,000 wounded soldiers, French, British, Indian, Belgian and German. Our American ambulances are now familiar objects all along the line. It is quite a common occurrence for our men to evacuate wounded from a sanitary train in Paris who have already been carried from the first dressing stations at the front to the head station of the sanitary train fully 200 miles from Paris.



FIRST IMPRESSIONS OF THE OPPORTUNITY FOR ORTHOPAEDIC WORK AT THE AMERICAN AMBULANCE.*

BY ROBERT B. OSGOOD, M.D., BOSTON.

I HAVE been somewhat uncertain since coming to the Ambulance as to just what an orthopaedic surgeon is supposed to be or to do. In a "sauf-conduit" I have been described as an "orthopédiste," which is apparently a chiropodist or corsetier.

* Read on May 7, 1915, at one of a series of medical meetings held at the American Ambulance, Neuilly, Paris.

In France, orthopaedic surgery has been most closely associated with tuberculosis of the bones and joints in children, and you are all familiar with the splendid work of Dr. Ménard and Dr. Calvé at Bercy-sur-Mer. This type of orthopaedic work was the type from which the name of the specialty originated: *orthos*, the Greek word meaning straight, and *pais*, a child, i.e. straightening crooked children. Of late years, especially in America, we have been receiving some crumbs from the masters' tables of Medicine and Surgery among adults and like to derive the words from *orthos* and the verb *paiⁿuo*, meaning to educate or to train straight, quite without regard as to whether children or adults are concerned. At any rate, let us not conceive the word to have anything to do with the Latin word *pes*, meaning foot, although this impression is very common because foot strain, especially in America, is so frequent a cause for orthopaedic treatment.

At first thought there would seem to be very little opportunity for orthopaedic work at a war hospital. Our friends among the enemy, however, are evidently finding this is not the case, and Professor Lange, the preëminent German orthopaedic surgeon, has been busy, both at the front and in Munich, which I believe has been made the orthopaedic base. I have here two interesting monographs by him on orthopaedic work in war which have lately been published. In England also Mr. Robert Jones has been put in charge of orthopaedic work of the English forces, and Liverpool has been made the orthopaedic base.

One can only give impressions, and I hesitate to mention even these after a few weeks' experience, being quite aware of the pity, if not the contempt, with which we treat the stranger who spends a week in America and then describes the race. It has been of great interest to see the very large number of compound and comminuted fractures, almost all of which are septic when they enter the hospital, and need further drainage. These present special problems which are unusual. The necessity for frequent and copious dressings and often constant drainage goes hand in hand with the necessity for immobilization as complete as may be, both for the promotion of union in good position, and the prevention of osteomyelitis of a chronic type.

It is only an impression, but a fairly definite one, that in these necessarily long-continued cases a problem quite as important as the healing of the original lesion is the conservation of motion and function in the joints in the neighborhood of the lesion, even if they have not been themselves originally injured. Stiff shoulders, elbows, wrists, knees and ankles are crippling in themselves, and once a fibrous ankylosis is firm, its healing is likely to require a far longer time than the healing of the original injury. If this stiffening can be prevented without sacrifice of the efficiency of the treatment directed toward

healing the original lesion, it is surely quite worth while thus to prevent it. To make the point clear, a fractured humerus treated without abduction of the arm will frequently be followed by an adherent sub-acromial bursa or a stiffness of the shoulder joint proper. If the arm is constantly and deliberately abducted once or twice daily, or the fracture can be treated in constant abduction, no stiffness need result, and in the case of a joint lesion, the arm will be in the best position for use in case permanent ankylosis of the joint occurs. There is perhaps no joint in which the position in which it is placed is of so much importance to its future function as the elbow, and ankylosis or restricted motion is very common. An angle a little more obtuse than a right angle means the patient cannot touch his face or feed himself; an angle a little more acute than a right angle means very satisfactory function. The hip has so wide a range of motion and is such a firm joint that, provided adduction and flexion are prevented, the eventual function is good. The knee position depends entirely upon the probable end result as to stiffness or motion. If complete ankylosis is to be expected a slight degree of flexion is more comfortable and useful. If any eventual motion is likely, hyperextension is most to be desired, since walking on a partly flexed joint in which there is motion is likely to become increasingly painful and to lead to many chronic articular changes. The ankle should always be flexed at a right angle. Perhaps this is not quite as important to the French women as to the French men since the national heel insists upon a certain amount of equinus.

Two important groups of cases have been apparently quite common at the Ambulance, resulting from nerve lesions and consisting of localized paralysis. The first is wrist drop from injury to the musculo-spiral nerve, and the second is foot drop due either to a spinal cord injury or to a lesion of the external popliteal nerve. Mr. Robert Jones has always emphasized in cases of paralysis, more particularly paralysis of poliomyelitis, the importance of preventing overstretching of the paralyzed muscles by allowing the malposition to be maintained, so that we may consider that apparatus may be not only retentive, but corrective as well. It is very pleasantly surprising frequently to see seemingly paralyzed muscles regain power when they are taken off the stretch as by a "cock-up" or elastic traction splint for the wrist or a toe drop splint for the foot.

We have had one case which illustrates the value of immobilization in cases of toxicemic arthritis when the process is acute. These cases will undoubtedly be rare in a war hospital, but may very well occasionally occur secondary to a septic process. Immobilization in these cases of the affected joints, not only gives relief to the pain, but seems definitely to make less likely the spread to other joints and to diminish the con-

stitutional effects which are frequently very much more marked in joint infections than when other and quite as important tissues are involved.

There can hardly be any question as to the value of the appreciation of the principles of the prevention of deformity to the cases under treatment, and the importance of it as an economical measure for the hospital and for the Government is obvious. Later on, undoubtedly, surgeons will have the opportunity of acquiring a more perfect technic in operations for recovering motion in stiffened joints. Arthroplasty is still in its experimental stage, despite certain brilliant results and much literature on the subject. One essential has been already emphasized; this is that a long time, perhaps a year, should elapse between the subsidence of a septic process in a joint, and the attempt to obtain motion by an arthroplastic operation. The field, however, must evidently be enormously widened by the unfortunate lesions of this war.

It may be of some interest to you to see some of the apparatus which is being employed by the Harvard Unit; little of it is original, and it is of value only in so far as it makes war surgery more easy and aids in preventing and correcting deformity and adding to the comfort of the patients.

I wish especially to thank Miss Cassette, in charge of the supply and apparatus department, for her great help. The apparatus work in the Ambulance is already of such a high grade that I fear we have simply brought coals to Newcastle.

Original Article.

SOME PARALYTIC CONDITIONS RESULTING FROM SURGICAL AND OBSTETRICAL ACCIDENTS.*

BY JAMES WARREN SEVER, M.D., BOSTON.

*Junior Assistant Surgeon, Children's Hospital, Boston;
Surgeon, House of the Good Samaritan.*

I have been asked to give you tonight a brief resumé of some of the more common paralyses following surgical and obstetrical accidents. None of these conditions are of common occurrence, fortunately, in any one man's experience in general practice, but are frequently seen in hospital clinics. This is especially true of two such conditions as cerebral spastic paralysis and obstetrical paralysis, which are seen in children in considerable frequency in various nerve departments of hospitals.

* Read by invitation before The Brookline Medical Society, April 5, 1915.

The other two conditions which I shall take up are Volkmann's ischemic paralysis and palsy of the musculospiral nerve following fracture of the shaft of the humerus.

Volkmann's Ischemic Paralysis. In 1869 Volkmann first described the clinical picture of a contracted wrist and hand following a fracture, with atrophy of the forearm, known since as Volkmann's paralysis or contracture. His first case, however, occurred in an acute synovitis of the knee, following the application of a ham splint. The gastrocnemius muscle showed diminished electrical reaction and a moderate amount of contracture, which improved without operation. His first paper was followed by another in 1881 in which he emphasized and elaborated certain points.

Lesser, in 1884, reported seven cases of fracture of the arm involving either the humerus or the two lower arm bones, followed by Volkmann's ischemic paralysis. He also attempted to reproduce the condition experimentally in twenty-three rabbits, but was unsuccessful. Others since have tried to reproduce the condition by animal experimentation of various sorts, directed towards the muscles and arteries, but have failed to get conclusive results.

What are the Causes of Volkmann's Ischemic Paralysis? Volkmann has laid down the statement that the condition follows the use of too tight bandages, usually after fractures, particularly on the arm, and occasionally on the leg, and that the paralyses and contractures are ischemic in origin, due to the cutting off of the arterial blood supply. He states that the paralyses and contractures generally come on together, while paralyses due to nerve pressure come on gradually. There is always great rigidity of the muscles from the first, due to great swelling, so that the part has a woodeny feeling. The ischemia is not complete, in that the part does not become gangrenous. The condition may also be seen after ligation, rupture and contusion of the blood vessels, as seen in a case reported by Astley¹ of Philadelphia in 1908, due to an embolus or thrombus of the brachial artery.

Murphy² states that he believes the condition is due to a blood and serum effusion in the subfascial zone, which causes cyanosis of the whole arm from pressure, followed by inflammation of this blood clot. The pressure, caused by this effusion, results in muscle cell destruction and necrosis, aided by tight bandages and splints. He believes that tight bandages, aided by tight skin and fascia, cause the damage, which is practically all accomplished in the first forty-eight hours. In other words, it is a traumatic myositis, resulting in permanent destruction of muscle tissue and so contractures, with or without nerve involvement in the scar tissue so formed. He does not agree with Volkmann, that injury to the artery plays any part in the destruction of the protoplasm of the muscle cells,

but that pressure from the exudate and venous obstruction are the factors which cause the subsequent train of events.

Most frequently the condition is seen following fractures of the lower portion of the humerus and the bones of the upper forearm in children. The supracondylar region seems to be the region of election, and the majority of cases seen are under fifteen years of age.

The irreparable damage to the muscle is accomplished within the first three days, but the full extent of the contractures does not appear at once. The damage is always done on the flexor surface of the part and is a flexor contracture and never an extensor contracture.

There is almost always some impairment of sensation or paralysis of the small muscles of the hand, due to nerve involvement or injury at the time of the accident.

The pathological muscle changes represent typical hyaline degeneration and disappearance of muscular tissue in varying degrees, according to the severity of the original process.

Symptoms and Onset. Now what is the method of onset and what are the symptoms? After a fracture, usually of the upper extremity, which has been splinted and bandaged, there may be noted incipient swelling of the part, with stiffness and cyanosis of the hand and fingers and forearm. There is almost always marked and intense pain, more than can be properly due to the fracture *per se*. These conditions are soon followed, if the bandage and splint are not removed, by limitation of motion and then complete loss of motion in the hand and fingers. The swelling may subside of itself, if the splint and bandages are not removed, but greater damage will probably be produced, and pressure sores are likely to result. If, on removal of the bandage and splint, great swelling is present with a very tight skin, free incision into the forearm should be made in order to relieve the tension. Probably in some cases this procedure would be of great help and relief.

Following the Establishment of the Contracture, What Is to be Done? Many methods have been tried to relieve the contracture, but none has been wholly successful. As the arm grows, the muscles and tendons become relatively shorter and so lead to greater contractures. The bones of the forearm have been shortened in a number of cases with and without benefit. Tendon lengthening has been tried and again has proved to be of use in certain cases, but is a long and elaborate operation, and is quite likely to lead to more adhesions. The method which seems to offer the best result is the one which divides the muscle bellies by free incisions and so lengthens the tendons.

The after-treatment is of the greatest importance and consists of the use of a palmar and dorsal splint to prevent and reduce the contractures of the wrist and fingers; electricity, galvanic and faradie, if there be nerve involvement, and

massage and manipulation. Treatment should be long continued, but in many cases the benefit to be derived from any or all of these methods is not very great, and it is only rarely that a very useful hand is obtained. The results, however, are much better than if nothing had been attempted.

Musculo-Spiral Paralysis. This condition is not very rare, and usually follows fracture of the middle third of the shaft of the humerus. The musculo-spiral nerve, as it passes around the humerus from behind and to the inner side of the humerus, downward, outward, and forward in the musculo-spiral groove to the outside of the humerus, becomes involved in the callus or impinged on by a spicule of bone. Involvement of the nerve and subsequent paralysis may follow fractures of the upper third and lower third of the shaft of the humerus, but its occurrence under these conditions is very infrequent.

Its occurrence is a serious accident and complication, and usually calls for careful study and possibly surgical interference. It is a condition which may be overlooked at first, and is not usually noticed until the splints are removed and the patient attempts to move his hand, when it is noted that there is paralysis of the extensor group of the arm and hand, resulting in the typical wrist drop. The hand is held pronated and there is no power to supinate.

The paralysis is usually wholly motor, even when the nerve is greatly injured. There may be some slight impairment of sensation, but it is never very great. The reason of this preservation of the sensation, when the nerve is so greatly injured, may be attributed to the fact that the cutaneous branches leave the trunk of the nerve above the fracture and probably carry sensation to the radial half of the hand. Sensory symptoms have no relation to the amount of motor impairment: when loss of sensation is present, it may usually be found in the distribution of the radial nerve in the hand, namely, on the dorsum between the metacarpal bones of the thumb and forefinger.

Period of Onset. If the nerve is torn at the time of fracture, there is, of course, immediate loss of function, and paralysis at once appears. If due to involvement in the callus or pressure from bone spicules, the onset is more gradual and will probably not appear until about the beginning of the third week.

The prognosis is usually good if the condition is recognized early. About 50% of the cases require operation. Others get well without one. In cases where involvement in the callus is the only condition present, the result from operation will generally be perfect. In others, where the paralysis is due to tearing, stretching, or complete section of the nerve with separation of the ends, an early operation offers better results than a long deferred one, but even with nerve suture or nerve lengthening, the results

may not be ideal or even good. The following case is one of interest:—

Several years ago I saw in consultation at the Waltham Hospital, a man who had had his arm broken in two places. The fractures were located at about the junction of the middle and upper third of the humerus and at about the junction of the middle and lower third of the radius and ulna. I saw him about four months after the date of fracture, and after the union had become solid. One month after the fracture, it was noted that he had a wrist drop and paralysis of the extensors of the forearm with no voluntary motion of wrist or fingers. Subsequently, he had typhoid fever, from which he was convalescent when I saw him.

The injury was on October 2, 1909. The paralysis was noticed on November 2, 1909; and on February 28, 1910, I operated on him. X-rays of the humerus showed that there was moderate lateral displacement of the fragments of the humerus, with only a fair amount of callus. The operation showed that the musculo-spiral nerve was stretched tightly over the sharp lower edge of the upper fragment and then became involved in the callus. The nerve trunk was very thin and atrophic, but was continuous. It was freed thoroughly and lifted up, and under it, between it and the bone, was sewed a piece of the tricep muscle to prevent further callus involvement. Following this, the bones of the lower arm were resected as they were overriding. The ends were approximated and held together by kangaroo tendon. He made a good recovery and in three months had a useful arm, but still had some slight paralysis persisting. He was again operated on on May 27, 1910, and a few spicules of bone were removed from the inner aspect of the humerus at the site of the fracture through an incision on the internal aspect of the arm. These spicules pressed on the portion of the nerve as it began to wind about the humerus on its internal aspect. Following this he made a perfect recovery. In October of 1910, five months later, he was readmitted for a fracture of both bones of the same arm in another location, following a fall. At this time he had completely recovered from his musculo-spiral paralysis.

It is probable that if this case had not been operated on, sooner or later the edge of bone would have completely cut through the nerve and the chances of success then from operative procedure would have been much diminished.

Increasing paralysis demands surgical intervention in these cases, as well as a paralysis which shows no tendency towards improvement. After-treatment is always of the greatest importance and is to be carried out by means of massage, electrical stimulation, baking, and active motion as far as possible.

We will now take up paralysis accompanying obstetrical cases:—

OBSTETRICAL PARALYSIS, OR BIRTH PALSY.

Obstetrical paralysis, or birth palsy, is produced by injury to the fibres of the brachial plexus, usually the result of a difficult labor, and caused by forcible separation of the head and shoulder on the affected side. Obstruction to the after-coming head, with a pull exerted on the shoulder, or vice versa, is the accepted method for producing the nerve lesion. T. Turner

Thomas of Philadelphia states he believes that the paralysis usually results from a laceration of the axillary portion of the joint capsule, following an injury to the shoulder joint itself, occurring at birth. This tear in the capsule produces an inflammatory serous exudate which involves the branches of the brachial plexus adjacent. He believes that there is always in these cases a primary traumatic subluxation of the head of the humerus, accompanied by a laceration of the joint capsule, rather than a primary nerve lesion. He fails to back up his statements with pathological evidence, however, of which there is sufficient on the other side to tend to disprove his theory. It is perfectly true that later, as the child grows older, there is, in many cases, a posterior subluxation of the head of the humerus, accompanied by bony deformity of the clavicle and acromium. Early cases, in mine, and others of larger experience, have never shown this condition. Congenital dislocation of the shoulder is not accompanied by brachial paralysis. Separation or fracture of the humeral epiphysis may be accompanied by paralysis resembling that seen in cases of birth palsy, and I have seen one such lately in an eight weeks' old baby. X-rays will generally show fractures or epiphyseal separations or dislocation of the joint, which may be of sufficient severity to cause secondary brachial paralysis.

The condition is usually noticed at once following delivery, and presents the following typical picture. The arm hangs at the side, limp and helpless; the hand is pronated; the elbow extended; and the humerus in extreme inward rotation. There is present a distinct inability to raise or abduct the arm at the shoulder, due to the paralysis of the deltoid and supraspinatus. The arm cannot be rotated out because of the paralysis of the infraspinatus and the teres minor. The internal rotation is marked and constant, due to the unopposed contraction of the subscapularis, latissimus dorsi and the pectoralis major.

This position is due to injury of varying degrees of the fibres of the brachial plexus from stretching or tearing forces, as shown by Clark, Taylor, and Pront³ in experimental work and by autopsy on cases. The fibres may be torn, or may be compressed by a surrounding hemorrhage about or within the sheath of the cord, or the stretching may be accompanied by only a serous exudate within the sheath.

There are two distinct types of paralysis resulting from this injury, the so-called upper and lower arm types. The upper arm type usually is the more common and is the result of injury to the two upper segments of the brachial plexus, formed by the fifth and sixth cervical segments. When the seventh, eighth and first dorsal segments are likewise involved, the paralysis is more complete, and the so-called lower arm type results.

The upper arm type results in a paralysis of

the deltoid, supra- and infraspinatus, brachialis anticus, biceps, supinatus longus and brevis. The lower arm type results in more complete paralysis, involving practically all the shoulder and lower arm muscles, as well as those of the hand.

Sensation is, as a rule, not impaired, due to the probable integrity of some of the unimpaired collaterals.

The two muscles which are usually spared are the subscapularis and the pectoralis major, the latter causing adduction of the humerus, and the former holding it in marked inward rotation. The reason for this is that the subscapular nerve is usually given off from the posterior cord of the brachial plexus and receives filaments therefore from the fifth, sixth, seventh, and eighth cervical segments. It is because of this liberal supply largely from the seventh and eighth cervical segments, that it continues to functionate, even if some of its fibres are destroyed which come from the upper segments, which are the ones most frequently injured. The pectoralis major is also supplied by a nerve, known as the external anterior thoracic, which comes from the outer cord of the plexus, made up of the fifth and sixth cervical segments, but also receives collateral branches from the seventh and eighth.

The fact that the supra- and infraspinatus are practically always paralyzed, points toward a primary injury to the plexus, for the supra- scapular nerve which supplies them, comes off from the plexus too far above the shoulder joint to be involved in any exudate which might be present about it as a result of a tear in the capsule.

The Arm Being Found in the Condition above Described, What is to be Done? It must be determined whether or not a fracture, dislocation or epiphyseal separation is present. This can usually be determined by the customary methods of examination, supplemented by x-ray examination. Tenderness and swelling about the joint are of importance, and tenderness on pressure above the clavicle over the course of the brachial plexus should be determined. Tenderness and swelling in the axilla might also indicate an exudate about the lower portion of the plexus.

Inequality of the pupils should be noted, if present. If there is an inequality, it means that there has been, without question, an injury to the inner cord of the brachial plexus, high enough up to cause stimulation of the sympathetic branch of the cervical sympathetic plexus, which sends off a communicating branch from the fifth cervical segment of the cord. The paralysis of the muscles involved should be determined as carefully as possible. As one of the commandments of orthopedics, I believe that it is essential to prevent deformity and contracture in any case. Therefore, it would seem best, in any case, to elevate, outwardly rotate, and ab-

duct the arm and hold the hand supinated. This can be done easily, and the position maintained by means of plaster of Paris, or by a wire splint. This position should be maintained at all times, except when the arm is released for massage and exercises, which should be done daily and for a long period, say, at least, several years. The maintenance of this position prevents contractions of the subscapular, latissimus dorsi and pectoral muscles, and stretching of the paralyzed ones. The principle is no different from that which we use in the early treatment of cases of infantile paralysis to prevent deformity. One good argument on the other side should be considered, however. Persons with long experience and good success in the treatment of these cases, say that it is not wise to fix the arm of a young baby in such an apparatus as has been described, for the fact that the child will forget to use it, and so it will be more difficult to make it use it. The child will become obsessed with the fact that the arm cannot be used and progress will be delayed and the end-result will not be so good. They believe that such contractures and malpositions as may occur or persist, are to be discounted in favor of early and constant use and training, rather than the possibility of no contractures and less ability to use the arm freely. Personally, I have not become convinced of the logic of this last argument, and still think that an arm in as good an anatomical condition as it may be possible to make it, will eventually be a more useful arm than one which has been allowed to become fixed in inward rotation through contraction, together with more or less posterior subluxation of the shoulder joint, as is almost always seen in the older cases. Corrections of these two deformities, together with osteotomy of the acromion, which frequently grows down in front of the head of the subluxated humerus in older cases and prevents its full replacement, generally results in a much better and more useful arm. Why not prevent the necessity for these procedures by taking the proper precautions at the beginning?

Probably subluxation posteriorly usually occurs, because of the excessive pull of the contracted subscapular and latissimus dorsi muscles, which pull the upper end of the humeral shaft backward, helped to a certain extent by the forcible adduction and inward rotation forces applied by the contracted pectoralis major.

Patience and perseverance are needed in the treatment of these cases, besides careful supervision over a period of years—accompanied by constant exercises and massage. The results in the past have been fairly good. The future promises better ones, in view of increased knowledge, or better, our different point of view and clearer understanding of the problem.

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HOMOGENIZED MILK: ITS POSSIBLE APPLICATIONS TO INFANT FEEDING.*

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HOMOGENIZATION of liquids of different densities consists in reducing the constituent elements into such a physical condition that they will no longer separate, but will maintain a permanent and even composition throughout the mixture.

Briefly stated, this result is brought about by a powerful pump which forces the mixture through a finely ground agate valve against great pressure. After its passage, the mixture is perfectly homogeneous, and in the case of milk, or mixtures of milk and oils, the fat globules are crushed, torn and pulverized and so incorporated with the other elements of the milk, that they can no longer rise by action of gravity, separate after long standing nor agglutinate.

The mechanical device by which this result is made possible is the invention of M. A. Gaulin of Paris. His first machine was brought out in 1899. With this the fluid elements were forced through very fine capillary tubes, but the practical results were not perfect, owing to the fact that many of the fat globules passed through the smallest possible capillary tubes without alteration. M. Lindet, of l'Institut Agronomique, who had interested himself in Mr. Gaulin's invention, demonstrated that the ascending force of fat globules were proportionate to the cube of their radii, and that the principle of stabilization of milk consisted in reducing these radii to a dimension as near as possible to zero. The diameter of butter fat globules varies from 1/100 to 1/1000 of a millimeter, whereas the smallest holes that can be bored in a metallic surface is about 1/10 of a millimeter. This led M. Gaulin to adopt an entirely new method of carrying out his original idea, and in 1902, he announced his invention of a device which subjected the fat globules to great pressure between two surfaces, exactly adjusted to each other, but sufficiently elastic to permit the passage of the most minutely divided particles.

The essential patent in this homogenizing machine is an agate valve, so finely ground that it will leak only under great pressure, and held in its bed by a variable tension spring, which is regulated by a fly wheel with a screw end. The mixture is pumped against a pressure which may vary up to 500 kilos. The pumps vary in capacity from 50 to 2000 litres per hour; according to the size.

It is not my intention to enumerate in detail the commercial applications of this process, which has been extensively used on the continent and in England and to a considerable extent in this country. The chemical composition of the milk is in no wise affected, but in cases of milk

and cream mixtures, the physical condition is so changed that the fat can no longer be separated by the usual cream separators. In making the Babcock fat test more acids must be used and centrifugal action continued for a longer time.

Homogenization improves decidedly the taste of the milk or cream, particularly that of pasteurized milk. As the process prevents the separation of the fat, homogenized creams can be readily pasteurized. When commercial milk is to be transported long distances in warm weather, and its temperature allowed to rise from lack of proper refrigeration, the continual jolting to which it is subjected causes the cream to be churned into butter fat, and it is impossible to reincorporate it into the milk in its original form. The same disturbance of emulsion may, under similar conditions, happen to milk modifications. We are all familiar with the greasy surface seen in summer in the bottle of milk brought to the clinic by the mother who lives at a distance, so that a considerable quantity of fat is often taken into the baby's stomach in large indigestible globules.

The application of homogenization to ordinary whole milk or to any kind of a milk modification, will overcome this defect; and theoretically it would seem as if it would yield a much more digestible mixture. This is one of the points I hope we shall be able to determine in the series of cases I have planned.

Variot, in Paris, has used an homogenized milk in the "Goutte de lait" de Belleville. He claims it is taken as successfully as breast milk and has never seen cases of infantile scrobutus nor rachitis which could be attributed to its use. Chevalier demonstrated by chemical analyses that the constituents of homogenized milk are more completely absorbed than those of simple sterilized milk. The more finely divided the food, the greater is its accessibility to the digestive fluids, and the greater its assimilation.

It is interesting to note also that when rennin is added to homogenized milk, the curd which results is a homogeneous flaky paste, resembling closely the curd of human milk.

The process of homogenization has a beneficial effect upon its keeping qualities. An official in the laboratory of M. Gaulin is authority for the statement that milk sterilized and homogenized has been shipped by various methods of transportation for more than 14 1/2 months, and at the end of that time has been found "as good as fresh milk," without the application of ice or addition of preservatives. This fact, if verified, might have an important and practical effect in the shipment of modified milk to distant points. It may be found that one or two shipments a week is safe and practical. If this is so, it would mean a great saving in expense to the consumer, and would facilitate the distribution of prepared mixtures to distant points.

Recently, while discussing various feeding problems with Mr. F. C. Howe of the Walker Gordon Company, I first learned of this inven-

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tion of M. Gaulin. The idea of utilizing it to improve the quality of ordinary milk modifications occurred to us at that time, and it required very little imagination to foresee a possible field for investigation into infant foods which may open many new lines of study. Through the kindness of Mr. Walker, and the coöperation of Mr. Howe, we were able to secure temporarily for experimental purposes one of the homogenizing machines and install it in the laboratory, where it could be run by the power plant of the refrigerating apparatus.

The most interesting application of this principle of homogenization is in connection with the fat constituent of milk modifications, especially in cases of so-called "fat intolerance." These feeding cases are, perhaps, the most difficult ones with which the pediatrician has to deal. Their general characteristics have been so well and so recently described before this society by Dr. Dunn, that it is hardly necessary to discuss them in detail tonight. Briefly stated, one recognizes a class of feeding cases in which the fat of cow's milk, if given in too large percentages, leads to a digestive crisis of a serious nature. The restoration of the infant's tolerance for fat then becomes a very slow and gradual process. During this period the nutrition suffers severely. There are, of course, all degrees of intolerance. The milder cases may generally be corrected and controlled by careful feeding. The severe cases often resist our best efforts and pursue an interrupted downward course. Certain of these babies are capable of digesting high percentages of carbohydrates and proteins so that the nutrition of the body can be maintained, but others are unfavorably affected by such an unbalanced ration. Without recourse to breast milk, they cannot be made to thrive.

The fact that the great majority of cases of fat intolerance occur in artificially fed infants, and the further observation that, in the first year at least, they generally respond favorably to breast-milk, raises the interesting question as to whether it is fat *per se* which causes the familiar symptom-complex or simply the peculiar qualities or reaction to the fat of cow's milk. Generally speaking, breast milk contains a much higher percentage of fat than that which has been given in the milk formula, and yet, under its use, the symptoms gradually disappear, and metabolism is restored to its normal basis.

These considerations have led to more or less experimentation with vegetable oil, and fats of other animals, such as lard, and with cod liver oil. But we have now an opportunity to combine such fats and oils with other milk ingredients in a practically perfect and permanent emulsion, so that we may reasonably expect a totally different result from their use.

If, as a matter of experiment, one can show that olive oil, for instance, is readily digested and assimilated when homogenized with skim-milk, in these cases of intolerance to cow's milk

fat, one can then seek by more detailed experiments, of a more exact and scientific method, to find out what element or elements of cow's milk fat is the source of the toxic substances which seem to be formed in the processes of digestion.

One of the most striking facts which recent metabolism experiments in infants has shown is the interrelation of the various ingredients of milk in normal metabolism. A disturbance in the digestion of an element frequently influences the metabolism of the other elements, and the end result, which we see in the vomiting, diarrhea, abnormal stools, malnutrition and toxemia, represent a very complex series of antecedent causes.

Now, if we can separate in a pure state and recombine into a homogeneous mixture the necessary food elements for an infant, we have advanced to an interesting stage of experimentation to determine some of the possible primary causes which start up the train of symptoms leading to the digestive explosions so often seen in the artificially fed infants.

It is possible, for instance, by this process of homogenization to combine an almost pure olein, or palmitin, or stearin with fat-free skim milk, and so eliminate almost entirely the influence of the various fats of cow's milk. By using a chemically pure precipitated casein, we can combine pure casein with pure oils and pure sugars of different varieties, adding artificially prepared mineral matter in varying proportions. Such mixtures, homogenized, may be found to be of use in exact metabolism experiments, although they would be too expensive and complicated for practical feeding.

We may combine a vegetable fat, such as olive oil, with precipitated casein, or fat-free lactic acid milk, and test its food value in acute diarrheas, or in convalescents from acute diarrheas, conditions in which the ordinary fats of milk are not well tolerated. I have had an opportunity so far to test the tolerance to olive oil in these acute infections in three cases only; one a convalescent from a severe infectious diarrhea, and two during an infectious diarrhea at the end of the first week of fever. In the convalescent case, the child, two and a half years of age, took two per cent. of olive oil in a fat-free lactic acid mixture and gained over a pound in four days. The case returned then to the country and I was not able to observe further its use.

In the other two cases the 1.50% of olive oil was given in a malt soup mixture. Both children, one one year, the other three years of age, have steadily improved. As the cases are far away from Boston and the parents have no means of weighing the children, my observation of the effect of the food is incomplete, but the result at least justifies the hope that such cases can be given food of higher calorie value by this method, with less disturbance of nutrition and greater conservation of strength. Dr. Wyman and I are planning more extensive and accurate

investigations along this line, through the courtesy of Dr. Bowditch, when the material which the Floating Hospital will furnish is available.

Mr. Howe is at present experimenting with the effect of an homogenized mixture, cotton seed oil and skim milk, upon calves. A perfect emulsion is obtainable. Whether such a food, which could obviously be produced at the minimum of cost, could be of use to infants, is at present interesting as a speculation only, but is worth investigation.

A more practical problem at once suggests itself in mixtures of olive oil and skim milk—especially in combination with the malt soup mixtures.

The type of food which I have found most useful in cases of fat indigestion with extreme malnutrition, is the malt soup mixture. Many of the worst cases are amenable to successful feeding by this method intelligently applied. However, we do meet with failures, and if we are to fairly test the applicability of an homogenized olive oil malt soup combination, we ought to select our cases from those who have been carefully fed in the past and yet failed to respond.

I have chosen olive oil for my first experiments, as olein is the principal fat of breast milk. The economic aspect of such a mixture, it seems to me, is of immense importance. The principal cost in milk modification depends upon the value of cow's fat or cream. Olive oil, even at ordinary retail prices, costs about one-fourth as much as cream. If combined with fat-free milk, the cost of a modified milk could be greatly reduced for the benefit of the poor, especially if we are able to demonstrate the possibility of keeping sweet and palatable, for several days a pasteurized homogenized milk.

Another point in connection with the malt soup olive oil mixtures is the effect of the homogenizing process upon the starch. The tendency for the barley decoction to separate on standing is strikingly prevented. In fact, any milk modification is improved in taste and appearance by this process of homogenization. It has been shown that whole milk so treated is more easily digested and assimilated. Homogenization of modified milks would, therefore, seem to increase their efficiency if used in cases in which there is no marked intolerance for cow's fat.

There are other fats and oils, besides olive oil, which I am planning to use as substitutes for cow's fat. Cod liver oil, for instance, homogenized with fat-free milk, or malt soup mixtures is fairly palatable as compared with ordinary methods of administration, but I have not yet tried it in a case of difficult fat digestion. Banana oil and the oil of the soja bean might also be tried.

Tonight I wish to call your attention to two cases only, which were my first selected difficult cases, both over two years of age, showing in one case, extreme, in the other, considerable, emacia-

tion, with intolerance for fat and failure to respond to the usual resources of feeding.

Case 1. E. C. Age, 2½ years. Date of admission, Jan. 23, 1915.

Family History. Negative.

Past History. Instrumental delivery. Birth weight 9-10 pounds. Put on barley water and milk. Was kept on this for three months. Was then given milk, bread and butter. First teeth at 4½ months. Talked at 8 months. Walked at 1 year.

Present Illness. Five months ago began to vomit immediately after eating. Vomiting persisted. Child was put on Walker-Gordon formula for three weeks. Vomiting ceased. Then put back on bread, potatoes, butter and beef juice. Did not vomit. Two months ago vomiting began again. Diet changed frequently without relief. Abdomen became large one month ago, swelling would be noticeable for a day or two then would disappear. Has remained swollen the last three weeks. Bowels constipated, not remarkably. Swelling of hands and feet for the past two weeks. Losing weight for past four months. Frets a great deal. Appetite is good, no urinary symptoms.

Physical Examination. W. D. and P. N. Loss of weight evident. Very irritable, pale. Head: Normal. Eyes normal. Ears negative. Mouth: Teeth 6/6. Tongue moist and clean. Throat clear. Neck: Normal. Glands not enlarged. Chest: No rosary. Lungs normal. Heart normal. Abdomen: Distended, tympanitic. No masses, tenderness or fluid. Liver and spleen not felt. Extremities: Reflexes normal. Slight firm edema of both hands and feet, also of arms reaching just below elbows. Skin: Clear. W. B. C. 15,000. Hemoglobin 40%. Von Pirquet negative.

Jan. 24, 1915. Stool, light grey non-formed, undigested potato. Acid reaction. No curds. Micro. Large excess of starch. Great excess of soap and fatty acid.

Jan. 25. R Low fat and low starch diet. Urine normal.

Jan. 31. Stool—light yellow, partially formed, salve like, slightly acid reaction. No curds. Micro. No neutral fat, no fatty acid. Considerable fat as soap, no starch. Persistent loss of weight and persistence of edema.

Feb. 1. Pnt on olive oil milk, 1.50 olive oil, 5.00 maltose, 1.75 protein, 0.75 barley starch, 5.00 lime water.

Feb. 2. Hungry, No vomiting. R 9 oz. 6 i. d. Barley jelly, b. i. d.

Feb. 5. Stool—large, soft, non-formed, light yellow. Few small, soft, yellow curds, faintly acid. Micro. Considerable neutral fat, no acid, no soap, no starch.

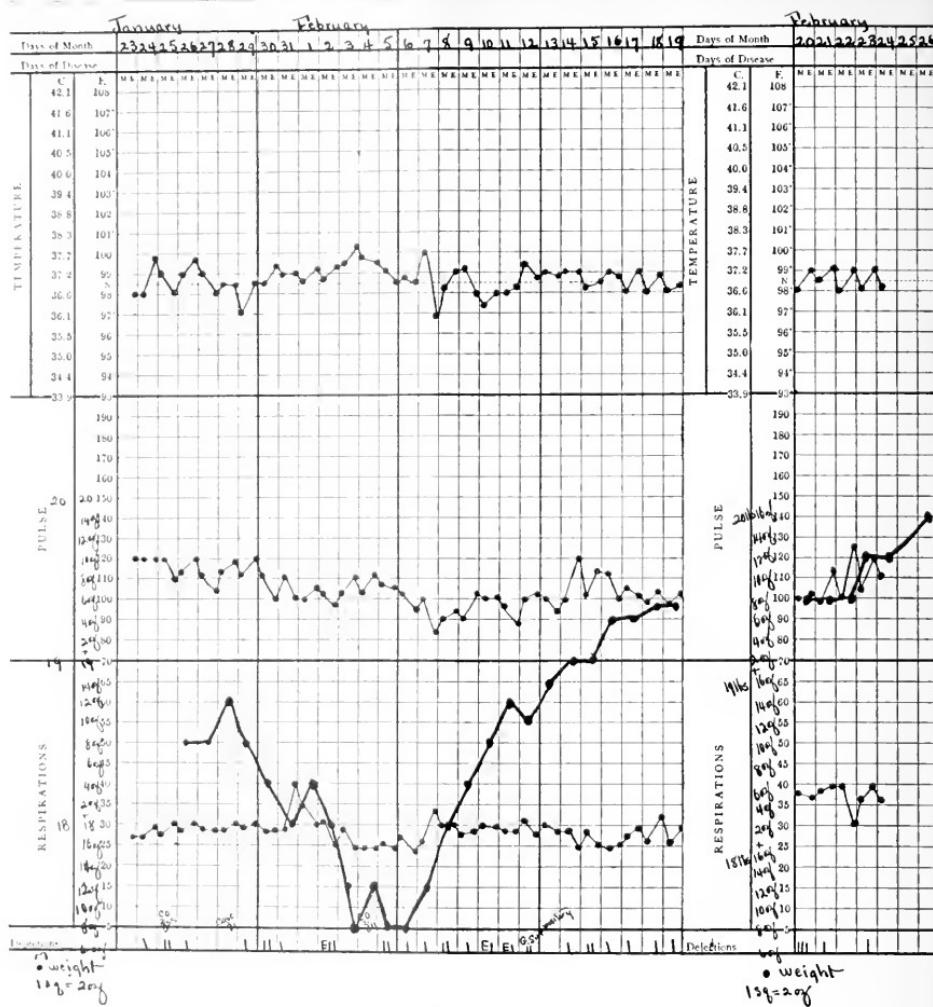
Feb. 6. Color better. Disposition greatly improved. Takes food eagerly. No vomiting. Bowels 1 to 2 i. d. Has lost 12 oz. since put on special mixture, probably due to absorption of edema, as the swelling of hands and feet has disappeared.

Feb. 8. Stool—light yellow, non-formed, salve-like. Few fat curds. Alkaline. Great excess of neutral fat.

Feb. 9. Gained 8 oz. last three days. Takes food easily, looks much brighter, better color.

Feb. 11. Stool—reaction acid. Moderate excess of neutral fat, no soap, no starch.

Feb. 12. Gain of 4 oz. daily for the last 7 days. Acts happy. Color better.



CASE I.

Feb. 15. Stool partially formed, yellow. No curds, alkaline, small amount of neutral fat.

Feb. 15. Sore tongue. Normal temperature. Skin clear. Gained 1½ pounds since put on special milk. Stools 1 to 2 i. d.

Feb. 18. Tongue much better. Stool—formed, yellow, no curds. Alkaline. Slight excess of neutral fat, no soap, no starch.

Feb. 20. Gained 8 oz. last four days. Hungry. Amount of fat in stools is gradually decreasing without cutting down the amount of fat in the milk. Patient actually smiled today.

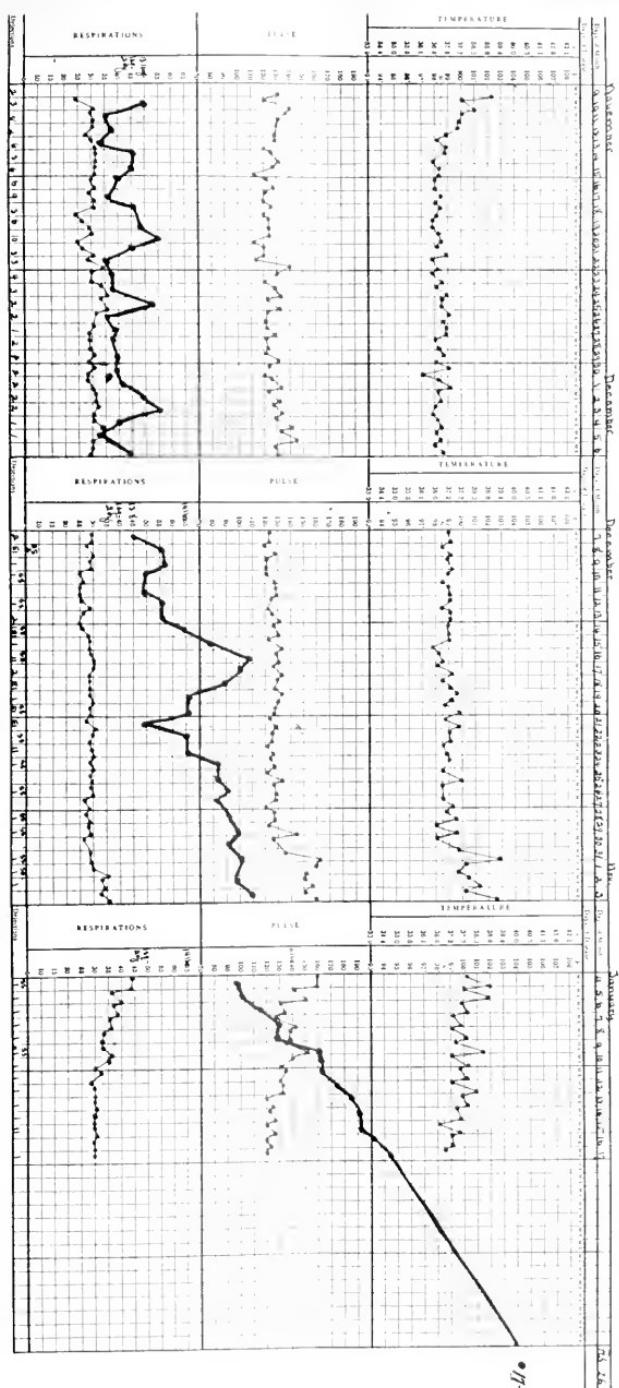
Feb. 22. R. 2.00 olive oil, 5.00 maltose 1.75

Feb. 22. By 2:00 olive oil, 3.00 maltose, 1.75 protein, 0.75 barley starch, 5.00 lime water.

No curds. Alkalini. Small amount of neutral fat, no fatty acids, no soap, no starch.

The net gain in three weeks since starting the homogenized olive oil malt soup mixture has been 2 pounds and 8 oz., an average gain of nearly 2 oz. a day. The disposition, appetite and general appearance of the child has improved in a corresponding degree.

CASE 2. E. D. Winchester, Mass. Seen on Aug. 31, 1914. Age, 22 months. Birth weight $7\frac{1}{2}$ pounds. Present weight 15 pounds 3 oz. First child. Breast-fed for 7 weeks, *i.e.* from Oct. 28 to Dec. 19, 1913, with a gain of about one-third pound only. From Dec. 19, 1912, to May 1, 1914, was given modified milk with many different formulas, containing sugar of milk, dextri maltose, Mellen's Food, etc. The net gain in four months was about $1\frac{3}{4}$ pounds. From May 1 to Aug. 26, 1913, was nursed by a wet nurse with a gain of 7 pounds. An attempt to introduce broth and cereals



27.11.

at this time (10 months) resulted in a sharp intestinal indigestion with the loss of one-half pound in weight. For the remainder of the year, breast milk only was given and the baby reached her maximum weight of 18 pounds 14 ozs. at 12½ months.

The history of the feeding in the second year was one of unsuccessful attempts at weaning, resulting in an irregular but, on the whole, persistent loss of weight, until at the age of two years the weight had dropped to 13 pounds 3 ozs. The appearance was then that of a child mentally bright, but extremely emaciated and without signs of any organic disease. The von Pirquet reaction was negative. The stools were large in amount, of foul odor, with much free fat, fatty acids and soaps. During the second year, all the resources of several experienced pediatricians had been tried and types of feeding adapted to suit various theories which were held as to the cause of the indigestion and malnutrition. These included skinned milk and fat-free malt soup mixtures, low fat malt soup mixtures, whole milk, goat's milk, and one period of six weeks on a general infant diet, without any milk. The results were much the same inasmuch as temporary periods of gains in weight would be followed by attacks of intestinal indigestion with rapid loss of weight, generally to a new low point.

On November 26 I first tried an homogenized milk with 2.00 fat (cow's), 5.00 maltose, 1.75 protein, 0.75 barley starch, 10% to the total mixture lime water, heated to 212°. With this was given, as before, the broth cultures of the bacillus lactic bulgaricus, and also panopepton. This resulted in a considerable improvement in appetite and a steady gain in weight of one-half pound in a week. Then came the usual "blow up," which differed from others only in that there was no marked intestinal indigestion; but the weight dropped to 13 pounds 3 ozs. again.

On Dec. 5, I used for the first time the olive oil malt soup mixture, starting with 1.00 olive oil, 5 maltose, 1.75 protein, and bicarbonate of soda, 2 grains to the ounce. In the following ten days there was rapid improvement, a gain in weight of 22 ounces, and a very striking improvement in appetite and general conditions. So ravenous in fact was the appetite, that the quantity had been increased to 56 ounces and the formula to 2.50 olive oil, 5.50 maltose, 1.75 protein, 0.75 barley starch, 2 grains bicarbonate of soda to the ounce, making 910 calories, or an energy quotient of 179. Then began a period of weight loss lasting for 5 days and reducing the weight to 13 pounds and 9 ozs. Whether this interesting decline was due to excessive feeding or to some disturbance in salt metabolism, brought about by the considerable amount of bicarbonate of soda (2 grains to the ounce) used during the period from Dec. 5 to Dec. 21, is difficult to determine. There was no loss of appetite or intestinal disturbance during this period of declining weight, but the stools showed a slight excess of soap and fatty acids. On Dec. 19, the olive oil was reduced to 1.50%, and on Dec. 20, the soda bicarbonate was omitted, lime water (5%) substituted and the homogenized milk, heated to 212° F. On Dec. 21, immediately began a second period of gain in weight and in general condition, which has steadily progressed, in spite of a ten-day febrile attack with bronchitis. From Dec. 21 to Feb. 26 (67 days) the net gain has been 3 pounds and 14 ounces, or practically an ounce a day, on an average. The food has been increased gradually to 2.50

olive oil, 5.50 maltose, 2.50 protein, 0.75 barley starch. Both lime water and heat have been omitted. The stools are normal in appearance, showing no free fat, fatty acids, nor soaps since Jan. 2, 1915. The tolerance for fats and carbohydrates has steadily increased. Cereal jellies, broths and Zwieback have been added to the diet without precipitating a digestive crisis, and the whole appearance is one of rapid and permanent gain in disposition, strength and weight.

These results in the face of twelve months' steady decline under carefully-directed feeding by competent pediatricians, prove beyond any doubt the practicability of olive oil malt soup mixtures in certain selected, difficult cases of feeding. A wide field is open to determine their indications and limitations.



LUETIC BURSOPATHY OF VERNEUIL: REPORT OF A CASE OF THE CONGENITAL TYPE.*

BY WM. PEARCE COUES, M.D., BOSTON.

UP to the time of Churchman's¹ classic article on this subject in 1909, the study of syphilis of the bursae had received but scant attention in America, though it had been written of in France, and had been recognized as of uncommon occurrence. The British writers on syphilis were silent on the subject, as Churchman points out in his article. Riehet's classic early monograph on the clinical features of specific arthropathies does not mention specific bursitis. The elder Keys² was the first to call attention to the subject in America, though his article did not receive the attention it deserved, in making the condition generally known. He does not mention the possibility of specific bursitis in congenital syphilis. It was to Verneuil³ that the credit belongs of first describing the conditions of specific bursitis. A few words concerning him are of interest in this connection.

Aristides Auguste Stanislas Verneuil was born in Paris in 1823 and died at Maison Lafite in 1895. He studied medicine in Paris and was an intern of the Paris hospitals. He was appointed assistant in anatomy in 1848, became *agrégé* in 1853, and was professor of pathology in 1858. Some of his important contributions were Investigations Concerning the Movements of the Heart, in 1852, Anatomy and Physiology of the Venous System in 1853. Verneuil studied the etiology of tetanus and his experimental and clinical studies of tuberculosis were the means of causing the first Congress on Tuberculosis, which was held in Paris in 1888. Among his shorter but important contributions were articles on anthrax of the lip and of the mucous membranes, resection of the hip, and separation of the lower epiphysis of the femur. It does not seem strange

* Read before the meeting of the New England Pediatric Society on Feb. 26, 1915.

that such an acute observer and physician of such broad knowledge should be the one to give bursal syphilis its first definite description.

A few words concerning syphilis of the bursae as a whole, before considering the congenital type of the disease, must be written to give us a clear understanding of the subject. Churchman's case was the only one he was able to find had been observed in the Johns Hopkins Hospital up to 1909. Keys had previously recorded twelve cases. The most common sites of syphilitic bursitis are the elbow, wrist, ankle and knees. The subcutaneous retro-olecranal and sub-aponeurotic retro-olecranal bursae are those to be considered in the recorded case. Churchman has graphically described the condition as follows:—

"The picture then is one of an indolent affection of the bursae. . . . The disease is quite independent of syphilitic arthritis, the bursae involved being oftenest those unconnected with the joints" (as in the reported case). "The bursae involved are those most exposed to trauma. But trauma only determines the site which the disease will occupy. . . . Specific treatment leads to a prompt and permanent cure. In view of the marked indolence of the condition, and its great similarity to the arthropathies of syphilis, it should be spoken of as a luetic bursopathy of Verneuil." A perusal of the literature on the subject of bursitis since Churchman's paper in 1909 shows that very little that is definite has been added to his masterly article.

SYPHILIS OF THE BURSAE IN CONGENITAL SYPHILIS.

No attention has been called to this subject, though, as Churchman says, there are intimations that the disease exists. Modern works on bones and joints are silent on the subject. This is strange, because, as Churchman again points out, congenital syphilis causes in the joints a condition clinically exactly like luetic bursopathy of acquired syphilis (Clutton's Disease), or symmetrical synovitis of the knees, familiarly known in England as "Clutton's knees." In the eleven cases reported by this author, no mention of the bursae was made. It seems that if they had been involved, they would not have escaped his remark. Diard,⁵ in reporting fifty cases of gumma in congenital syphilis, made no mention of the bursae, but two of his cases are worthy of note. The first, a case of Fournier's at the St. Louis Hospital, a girl of 25, with indubitable congenital syphilis, had developed at the age of 18 a gumma on the left shoulder, destroying part of the deltoid. The lesion partly healed, but later recurred in situ. From our present knowledge of bursal syphilis, it is certainly a possibility that this might have started in the sub-deltoid bursa. Leloir⁶ and Perrin (*Annales des Dermat.*, 1883) reported a case of a patient with a family history of lues. At 14 keratitis developed; at 16 there was a swelling

in the right popliteal space as large as a walnut, not painful and sharply defined, which was not adherent to the skin. A bursa might well be the site of this infection. Such indefinite references as the above are all that one finds in the literature.

REPORT OF CASE.

A. H., 13 years of age, was seen at the surgical clinic of the Boston Dispensary, Oct. 28, 1913. The family history obtained at a later date was as follows: Mother living and well; father, who is an actor, not living with the family; one sister and one brother living; the brother has a scar of an old keratitis on the right eye; both the other children small and delicate looking. Patient has had the chicken-pox and measles; no other diseases; never robust; "always something the matter." Last year fractured a toe; was treated for it in the surgical clinic. In August trouble with the right elbow after a fall; there was swelling, disability, which persisted for a time, and then disappeared almost entirely, and then became worse again after the present fall on the elbow.

Present Illness. On Oct. 27 he fell on the same arm while playing; has had considerable pain and disability in the elbow since. Examination showed a fairly well-developed and nourished boy, rather undersized; no obvious signs of inherited syphilis. The right elbow was swollen, particularly posteriorly over the olecranon where there was circumscribed fluid (olecranon bursa). There was some tenderness over the external condyle. The motions of the elbow were limited and painful. At a later examination, two small pieces of loose bone were felt through the fluid of the olecranon bursa; fixation with internal angular splint and sling. From the tenderness in the external condyle region it was at first supposed that there was a separation of this epiphysis or fracture. Radiographs, however, showed the lower epiphysis of the humerus to be normal. Two small pieces of bone were seen over the olecranon region. Nov. 25, getting on fairly well; but fluid persists, an indolent olecranon bursitis.

Extension and flexion much limited, apparently by the fluid in the bursae. No improvement having been made, five weeks after the last injury, operation was done. Shortly before this time, it was noticed that the child fainted at every examination and change of splint. Consultation with the children's medical department; cardiac dilatation and mitral insufficiency was diagnosed. The diagnosis of probable specific myocarditis was later made. Shin bones were very tender to pressure. X-rays of the tibiae showed a slight but definite periostitis. Wassermann negative.

Operation at the Children's Hospital, Boston Dispensary.

On account of the heart condition I opened the bursa under cocaine. A gummy, honey-like material was evacuated, with a small amount of pus. Two small, worm-eaten fragments of bone were removed from the cavity, which did not connect with the elbow joint. The process was found not to be in the joint, but definitely restricted to the bursae, the motions being limited by pressure from the fluid. Incision drained and partly sutured. The slightly blood-tinged, thick, gummy material, together with the pieces of bone, were sent to the City Hospital for examination; but, unfortunately,

the specimen was not properly preserved, and did not reach the hospital in a state fit for use. The larger piece of bone appeared considerably worm-eaten, like parts of a skull attacked by specific disease—the so-called "crâne en vermiculé." The bursae effected were the olecranon bursae. The process did not extend around to the front of the elbow joint. The wound did not do well. The condition was unsatisfactory until specific treatment, local and general, was given, when there was magical improvement and the elbow returned to normal in a short time. The case was followed for about six months. There was no return of the fluid and the function of the arm was perfect. The heart condition, which was severe, also improved step by step with the elbow. The child was seen in January, 1915. There is no trouble with the arm; the general health is very good.

CONCLUSION.

There are two forms of gummatous bursitis, which may exist in congenital as in acquired syphilis, one by extension of specific disease from neighboring parts, the bones and joints, and the other class, to which the reported case belongs, primary in the bursa itself. Syphilis of the bursae is probably often unrecognized.

The disease must be differentiated from subperiosteal abscess near the joints (specific osteomyelitis) and from congenital specific arthropathies, such as Clutton's disease. Radiographs will be of great aid in differentiating this trouble from true specific bone disease.

The Wassermann test,—contrary to the general idea that it is 100% positive in congenital syphilis,—may be negative. An x-ray of the shin bones should always be taken (lateral view), when there is a question of specific bursitis, as well as a Wassermann. The x-ray will often give the more valuable information of the two. Traumatism brings the condition to activity.

An indolent bursitis in a child, particularly in such localities as the elbow or knees, with or without traumatism, and with or without obvious signs of congenital specific disease, should arouse suspicion that we are dealing with a latent bursopathy of Verneuil, and lead to further study of the case, with this in view.

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SOME NEW SYMPTOMS IN AMAUROTIC FAMILY IDIOCY.*

BY ISADOR H. CORIAT, M.D., BOSTON,

First Assistant Visiting Physician for Diseases of the Nervous System, Boston City Hospital; Instructor in Neurology, Tufts College Medical School.

THE investigations of the last few years on amaurotic family idiocy have been so thorough that its clinical symptoms and its pathology are probably better known than any other organic brain disease of childhood. I wish, however, to call attention to some phenomena of the disease, which have either been completely overlooked or only briefly described. A reference to some of these phenomena had already been given in a previous communication on the disease, and it was only after further study that their importance was fully recognized. These symptoms may be described as follows:—

Explosive Laughter. This symptom was noticed in three cases. In two of these, the mental deterioration was marked. In the first case the symptom appeared about seventeen months after the onset of the disease, in the second case it began as one of the initial symptoms and ceased about ten months later, at which time the child was taken ill with scarlet fever. In the third case it was noticed about six months after the mental dullness first appeared. Whether this explosive laughter is a sign of the mental deterioration, as sometimes occurs in multiple sclerosis or dementia praecox, or due to some thalamic lesion, is impossible to definitely state at present.

Hydrocephalus. This was present in one of my cases, and in one case each reported by Huysmans and Sachs and Strauss.

Bulbar Symptoms. This was present in one case and was shown by drooling of saliva, choking spells, difficulty of swallowing and attacks of apnoea. This child died suddenly from bulbar paralysis.

Nystagmus. Constant lateral and rotary nystagmus was present in three cases, in one of which it persisted during the entire course of the disease.

Hypotonia. In two cases there was a marked flaccidity of the limbs, resembling the condition seen in amyotonia congenita (Oppenheim). Attention was first called to this symptom in amaurotic family idiocy by Kowarski, in some cases reported from Wilna, Russia.

Abnormal Reflex Phenomena. Increased reflex reactions to sound and touch are among the most interesting phenomena of this disease. The unusual sensitiveness to sound (hyper-acusis), which is so characteristic, has long been known and appears to be present in nearly all cases, at least in the early stages, although it may disappear with the increasing mental weakness. This increased sensitiveness to sounds in organic

* Read before the meeting of the New England Pediatric Society on Feb. 26, 1915.

brain diseases was first described by Oppenheim in cases of spastic diplegia, and in some instances it was so marked that even slight noises would cause asphyxia and loss of consciousness. In one of my cases of amaurotic family idiocy in which spastic phenomena were present, this greatly increased sensitiveness to sounds was present in so high a degree that the child would twitch the entire body, the limbs would stiffen and it would show great difficulty in breathing. Another abnormal reflex phenomenon, one which I have not seen hitherto described, was an increased sensitiveness to light or to tactile stimuli. Under these conditions, if the child were touched lightly with the finger on any part of the body, or, as in testing the pupillary reflex, if an electric pocket lamp were flashed suddenly into the eyes, there would follow a sudden muscular starting or twitching of the entire body. This phenomenon strongly resembles the condition seen in a frog poisoned with strychnine and in some respects, also, is like the increased reflex excitability to tactile and acoustic stimuli of decerebrate animals.

Other abnormal reflex phenomena are observed in this disease. For instance, plantar stimulation may cause a tremor of the stimulated leg or a rhythmical contraction of the quadriceps muscle, both of which may be of longer duration than the stimulus itself. A contralateral knee jerk reflex has also been observed, and like the plantar phenomenon, this consists of a rhythmical contraction of the opposite quadriceps and is of longer duration than the initial reflex itself. In one case an attempt at ankle clonus was unsuccessful in eliciting this reflex, but produced instead a rhythmical contraction of the opposite quadriceps muscle, whose duration again outlasted the length of the attempt to produce the clonus. At no time have contralateral Oppenheim or Babinski reflexes been observed. In one case, in which the pupils were unequal, there could be demonstrated a unilateral paradoxical pupillary reaction.

The explanation of these abnormal reflex signs is rather difficult. The phenomena are probably irradative and show that certain inhibitions in the receptive mechanisms of the central nervous system are at fault. This is easily understood by the widespread nature of the disease and the involvement of nearly all the cells of the central nervous system. The contralateral reflexes and the quadriceps contraction on plantar stimulation are probably caused by an irradiation from the pyramidal tract, since at all levels fibres from this tract bend from their longitudinal course to a more or less horizontal one and by the white commissure reach the opposite side of the spinal cord and pass into the anterior horn.

The prolongation of the reflex discharge after the initial external stimulus (as seen in the knee jerks, ankle clonus and plantar reflex), probably takes place through this irradiation, in which a larger number of motor elements

are thrown into activity than would normally be the case. This irradiation of reflexes thus corresponds to the causes of irradiation in long spinal reflexes, as shown by Pfleiderer's second law. The increased tactile and acoustic reflex signs, leading to widespread involvement of the muscles in various parts of the body, likewise finds its most satisfactory explanation on the basis of pathological irradiation. Stimuli reach the brain through the peripheral sensory neurones of touch, sight and hearing, become irradiated to the motor centres and strike these with a proportionately greater force. This takes place because the widespread cellular nature of the disease with the mechanical destruction of the neurofibrils removes certain inhibitions which normally exist in the central nervous system, somewhat like the action of strychnine and consequently the amaurotic idiot reacts to stimuli like a strychnized animal.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

MEETING OF FEBRUARY 26, 1915, HELD AT THE BOSTON MEDICAL LIBRARY.

The Vice-president, Dr. E. F. CURRY of Fall River, Mass., in the chair.

The following papers were read:

TYPHOID FEVER IN CHILDREN.

By DR. KARLTON G. PERCY, Boston.*

HOMOGENIZED MILK. ITS POSSIBLE USES IN INFANT FEEDING.¹

By DR. MAYNARD LADD, Boston.

LUETIC BURSOPATHY OF VERNEUIL. REPORT OF A CASE. CONGENITAL TYPE.

By DR. WILLIAM P. COUES, Boston.

SOME NEW SYMPTOMS IN AMAUROTIC FAMILY IDIOCY.²

By DR. ISADOR E. CORIAT, Boston.

DISCUSSION.

DR. MAYNARD LADD: (Dr. Percy's paper.) I think that no one who has not made a study of the statistics of hospital cases can realize the enormous

* Dr. Percy's paper will appear in a later issue of the JOURNAL.

¹ See JOURNAL, p. 13. ² See JOURNAL, p. 18. ³ See JOURNAL, p. 20.

amount of work which has been done in a paper of this sort. Most of the conclusions are in harmony with the general statistical cases. The very low percentage of mortality is, I think, one of the most interesting points and is worthy of special note. Credit for this should be given to the nursing, as no special drug treatment has been used in these cases.

DR. J. L. MORSE: I also want to call attention to the amount of labor which Dr. Percy's paper represents. I once analyzed a series of 284 cases from the City Hospital records, so that I can probably appreciate it better than anybody else here. As I remember, my figures were not very different from those of Dr. Percy at the Children's Hospital. I think that the mortality was somewhat higher. The point which surprised me more than anything else in his results was the relatively low frequency of bronchitis. I should say off-hand that it was more common than it seemed to be in Dr. Percy's cases.

DR. PERCY, in closing: In answer to the question of ileo-colitis, one infant came in who had typhoid and also an ileo-colitis. It ran the usual course of typhoid and was discharged well of the typhoid and the ileo-colitis. Otherwise in this series, in which we have had but few infants, we have had but one other case which could be considered as ileo-colitis and not typhoid. This child was one I reported in my mortality statistics with positive Widal, low white count, and death from pneumonia, otitis, ileo-colitis and toxemia on the thirty-ninth day.

DR. R. M. SMITH: I would like to ask Dr. Ladd if there has been any attempt to finely divide the fat globules in any other mixture than milk?

DR. MAYNARD LADD (replying to Dr. Smith): You can homogenize oils with a barley water or whey mixture perfectly well. In fact you can get the emulsion in almost any kind of a mixture, but the permanency of the emulsion depends a good deal upon the medium you use. Casein forms one of the best media for binding together the fat globules.

DR. F. B. TALBOT: I have been very much interested in Dr. Ladd's paper and am glad to know about anything that is a possible help in some of these very difficult feeding cases, especially in infants over one year old who have a fat or a starch idiosyncrasy, and I would like to ask Dr. Ladd whether, in the process of manufacture of this homogenized milk, where the pressure of 3000 to 5000 pounds is used, that produces heat enough to cause actual sterilization, and whether that is the reason why milk lasts for several months, and whether that is the reason that the curd does not precipitate in the ordinary way that cows' milk curd does?

DR. MAYNARD LADD (replying to Dr. Talbot): There are many things about this process that I do not yet know. I have not found out the maximum temperature to which the milk rises in going through the machine. The temperature of the milk is raised somewhat, but whether it reaches a point as high as 115° F. I do not know. When it comes out finally, it is not as high as that, I should say not more than 110° F. or 115° F. It may be that the heat generated in process of homogenization has something to do with its better keeping qualities, or it may be due, as one chemist has said, to the even distribution of the fat throughout the milk, inhibiting the growth of organisms which seem to thrive in cream, in preference to skimmed milk. As to the effect upon the coagulation, the minute subdivision of the fat would keep the masses of

casein which are formed by precipitation of the rennin from coalescing into hard curds.

DR. CORIAT (closing remarks): I have nothing further to add excepting that this paper is one of a series of a few which I have been working on for several years in a research in amnioric family idiocy, and I think my theory of the peculiar muscular sterility to different stimuli is well borne out by the pathology of the disease.

Book Reviews.

Selected Addresses. By JAMES TYSON, M.D., LL.D., Professor of Medicine Emeritus, University of Pennsylvania. Philadelphia: P. Blakiston's Son and Company. 1914.

This volume consists of a series of eighteen republished addresses on subjects relating to medicine, education, biography and travel, made by the author on various public occasions during the course of his prominent professional career, beginning with his oration at Haverford College in 1884 on "The Requirements of a Modern College Education," and concluding with his remarks at the dinner given him by his friends on his retirement in 1910 from the chair of medicine at Philadelphia. All are written in the author's most attractive literary style and are replete with the growing richness of wisdom and experience. Volumes of this sort, which preserve the essence of a writer's personality for the benefit of his successors, should be most warmly and gratefully received by the medical profession to whom they are dedicated.

The Balneo-Gymnastic Treatment of Chronic Diseases of the Heart. By PROFESSOR THEODOR SCHOTT. Philadelphia: P. Blakiston's Son and Company. 1914.

This volume is a short treatise based on the author's personal experience in the hydrotherapeutic and gymnastic treatment of chronic cardiac affections at Bad Nauheim, Germany. The system employed has been developed by himself and his brother, the late Dr. August Schott. The work is admirably illustrated with 87 figures, including 41 full-page gymnastic poses. In the foreword by Dr. James M. Anders of Philadelphia, a special comment is made upon the recent development of balneo-gymnastic therapeutics, both in Germany and in America, and on their great value in the treatment of certain cardiac conditions. The excellent translation of this monograph is by Dr. S. Lewis Ziegler of Philadelphia.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

AMENDMENT TO THE MEDICAL REGISTRATION LAW.

FROM time to time during the past year we have noted the progress of the attempted legislation in Massachusetts to regulate the methods of registration of physicians in this Commonwealth, and in another column of this issue we publish the complete text of the amendment recently adopted, which at last secures the desired regulation.

After an almost yearly attempt, covering a period of about twenty years, the Board of Registration in Medicine has just secured an amendment to the medical registration law, limiting the examination for registration to applicants who have received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school having the power to confer degrees in medicine.

Massachusetts is almost the last state in the

Union to adopt such a restrictive measure, but this amendment to the law finally places it in the progressive lines with other states. The legislation was effected only by a struggle between the two branches of the Legislature, lasting through the entire session.

The bill was first passed by the House after much opposition: rejected by the Senate, but on reconsideration was amended: the House refused to concur with the Senate in the passage of the bill in its amended form, and substituted the original bill in place of the amendment. A conference committee from the House and Senate was then appointed, which recommended the passage of the bill, which was finally passed on May 28, and signed by the Governor on the same day.

All efforts of the Board would have been unavailing without the hearty coöperation of Drs. Nickerson and Frothingham of the House, and Dr. Clark of the Senate, and the persistent, determined, and concentrated effort of Dr. A. K. Stone, secretary of the Committee on State and National Legislation. As a result physicians all over the state rallied to the support of this measure, and did efficient work.

This victory will rid the state of applicants who either fail to pass their examinations for graduation from medical schools, or who leave college under the false impression that a degree is of small importance in comparison with a certificate of registration. The restriction will also put a stop to the past method of one medical school which has made the graduation of its students dependent upon their ability first to pass the Massachusetts Board.

THE DOUBLE RÔLE OF CHLORINE IN WAR.

WHEN the history of the present war is written, not the least interesting feature will be the part played in it by medical science. The aspects of the conflict presented to the profession are the sanitary problems involved in the herding together of vast quantities of men, the surgical cases presenting themselves constantly, especially after an engagement, and the hygiene and dietary questions arising naturally in the

course of a long campaign. Lately, too, the opposing forces have had recourse to what might be termed chemical weapons in the form of asphyxiating gases. Probably the most widely used and the most deadly of these is chlorine.

In point of fact this gas might well be called the Dr. Jekyll and Mr. Hyde of war. It came into prominence during the early part of the conflict as an agent for the sterilization of drinking water. It has undoubtedly been the means of preserving many thousands of soldiers from intestinal disturbances of various kinds. Dropping its habit of an angel of mercy, it now appears in the shape of a demon of destruction.

Several methods are in use in the armies for the preparation of drinking water by the addition of chlorine, but they do not differ in essentials. One part of chlorine is added to from 500,000 to 7,000,000 parts of water, depending on the quality of the latter. The principle involved is the well known power of chlorine to destroy bacteria. The water is prepared by filtering when this is practicable, which is seldom the case in the field. If it is not, then alum is used, which will precipitate most of the organic material which would otherwise vitiate the chlorine. The chlorine is prepared in the usual way and acts upon the water while in its nascent state, thus being rendered more powerful. After treatment there should be an excess of chlorine, which is shown by testing with starch and iodides. Contrary to what might be expected, the resultant drinking water does not taste of the chlorine by the time it is ready for use, at least officers in the field testify that they have had no complaints on this score.

The more nefarious activities of chlorine first came to notice the latter part of April, this year, when the report was circulated that the Germans were using an asphyxiating gas, greenish in color and somewhat heavier than air. This gas was allowed to drift toward the attacking forces when the wind was favorable, or else contained in bombs which were propelled towards the enemy. Judging by the physical appearance of the gas, the symptoms of the men who breathed it and the precautions which were observed to have been taken by the German soldiers who were captured or found dead, the gas used was almost certainly chlorine. The pathological process caused by its inhalation is a severe, purulent bronchitis, and death occurs from asphyxia. In autopsies of such cases edema of the lungs has been a constant finding.

TREATMENT VERSUS CLIMATE IN TUBERCULOSIS.

THERE are two broad classes into which the practitioner usually divides his cases of incipient tuberculosis, either consciously or unconsciously. These are the well-to-do cases and the others. That is, those who can afford to change to a healthier climate and those who cannot.

Having decided after due inquiry that his patient can afford to seek the health belt, the physician should not consider his whole duty done when he advises him to make this change. He should be at some pains to impress upon the mind of the prospective health seeker the fact that the climate itself is not going to cure him unless he gives it every chance. For instance, although it seems scarcely credible, many patients are at considerable pains and expense to transfer their Lares and Penates to the west or southwest and then try to reap the benefits of the climate by taking a walk of an hour or two a day and sleeping with their windows open! Whatever Spartan flavor this may have to the patient, he should be told plainly that he might almost as well stay at home as dilute his treatment thus. The only way to use a climate is to soak it up, to get out in it, every day all day and every night all night. At the same time the other essentials of treatment, rest, diet and medical attention, should be employed.

In the United States Public Health Report for April 23, Dr. Ernest A. Sweet emphasizes this point in the course of an exhaustive report on conditions in Texas and New Mexico. Among other things he says, "The average sufferer comes to the West with the sole idea that the climate will cure him, that all he needs to do is to take up his residence in that particular locality, and that nature will somehow perform a miracle." This sort of invalid has never heard of fresh air, has made no provision for rest and may remain there a year, running a fever all the time, without consulting a doctor.

In fact, it seems to be the general opinion of those who have studied this subject that care without climate is better than climate without care, and this should be impressed on the second class of patients, those who for financial reasons are not able to change their residence. If patients are brought to understand that careful and intelligent attention to hygiene is more important than the climate they happen to live in, there would be fewer cases of depression due to brooding over inability to seek another climate.

EUROPEAN WAR SURGERY.

THE topics in surgery and medicine arising as a result of the events of the present European War are not only many, but of exceptional interest on account of the unusual character of the problems which they present. From time to time during the past six months the JOURNAL has published various contributions from its special correspondents in the European countries, presenting different aspects of the situation there existing from the immediate standpoint of those actually engaged. In the present issue of the JOURNAL we are glad to publish as leading articles two more extended papers based on the work and experience of the American Ambulance Hospital at Neuilly. The first, by the French surgeon, Dr. Gros, discusses particularly the problems of transportation and presents interesting conclusions with regard to the relative merits of various types of motor ambulances and of different methods of handling and caring for the wounded. The second paper, by Dr. Osgood, records the result of his recent experience in dealing with the problems presented among wounded soldiers in his special field of orthopedics. Though dealing with widely diverse subjects, these two articles illustrate the important fact that mechanical and technical skill, inventiveness and judgment, whether in dealing with the motor problems of transportation or with the static problems of apparatus and its adjustment, are essentials in securing the highest service and efficiency. It is our hope in future numbers of the JOURNAL, to present other expert articles dealing similarly with special aspects of the various problems presented in European war surgery.

MEDICAL NOTES.

PREVALENCE OF MENINGITIS, POLIOMYELITIS, AND OTHER DISEASES IN APRIL.—The weekly report of the United States Public Health Service for June 4, 1915, states that during the month of April, 1915, ten cases of cerebrospinal meningitis, three of poliomyelitis, 478 of smallpox and 67 of typhoid fever were reported in Indiana. During the same month there were in Texas, 386 cases of smallpox and 60 of typhoid; and in the state of Mississippi seven cases of cerebrospinal meningitis, 6078 cases of malaria, 1299 of pellagra, eight of poliomyelitis, 455 of smallpox and 173 of typhoid fever.

BRITISH BIRTHDAY HONORS FOR PHYSICIANS.—Among the British physicians recognized for distinction in the annual award of honors upon the occasion of the King's birthday are Dr. James Mackenzie and Dr. Frederick Needham, who both received the honor of knighthood. Sir James Mackenzie has been distinguished for the great scientific and practical value of his investigations of cardiac physiology and pathology; and Sir Frederick Needham, a well known expert in psychiatry, has rendered many years of able service to the commissioners of the board of control and to the British Lunacy Commission.

AMERICAN SOCIETY OF TROPICAL MEDICINE.—The annual meeting of the American Society of Tropical Medicine was held in San Francisco on June 15. The following officers were elected for the ensuing year: President, Dr. Milton J. Rosenau, Boston; first vice-president, Dr. Abley K. Ashford, San Juan; second vice-president, Dr. C. C. Bass, New Orleans; secretary, Dr. John M. Swan, Rochester, N. Y.

NATIONAL BOARD OF MEDICAL EXAMINERS.—The plan adopted by the American Medical Association at its recent 66th annual meeting in San Francisco, to provide a National Board of Medical Examiners, is reaching its fulfillment. It is intended that this board shall provide an examination which will entitle those applicants who pass it to practice medicine in any state in the union, that is, that states now requiring examination of applicants for licenses to practice medicine will accept the certificate of the National Board as sufficient. The inconvenience now experienced by physicians in going from one state to another to practice their profession may thereby be avoided. Up to the present time the following men have been appointed to serve on such a board: Admiral William C. Braisted, Surgeon-General, U. S. Navy, chairman; Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army; Gen. Rupert Blue, Surgeon-General, U. S. Public Health Service; Col. Louis A. LaGarde, U. S. Army, treasurer; Asst. Surg.-Gen. W. C. Rucker, U. S. Public Health Service; Commander E. R. Stitt, U. S. Navy; Dr. Herbert Harlan, representing the Confederation of State Boards of Examiners; Dr. Isidore Dyer, representing the Association of American Medical Colleges; Dr. E. Wyllis Andrews, representing the American College of Surgeons; Dr. Lewis B. Wilson, representing the Mayo Foundation; Dr. Victor C. Vaughan, representing the American Medical Association; Dr. William L. Rodman, secretary, representing the American Medical Association.

Dr. Alexander R. Craig of Chicago, secretary of the Association, reports that its membership has increased from 74,235 in 1914 to 76,020 in 1915.

PROHIBITION OF BORIC ACID AS A FOOD PRESERVATIVE.—Report from Washington, D. C., states that on June 21 the United States Supreme Court upheld the constitutionality of the Illinois Pure Food Law which prohibits the sale of a food preservative containing boric acid. Justice Hughes in his decision, stated that the validity of the law must be upheld unless it were shown beyond doubt that boric acid as a food preservative is not unwholesome. This, the court held, had not been done.

MEDICAL EDUCATION IN CHINA.—Report from Baltimore states that Dr. William H. Weleh left that city on June 30 for San Francisco, whence he will sail on August 1 to China with Dr. Simon Flexner of New York and Dr. Wallace Buttrick, director of the China medical board and secretary of the general education board. The board composed by these physicians has been established by the Rockefeller Foundation to carry out the numerous recommendations of a special commission, which last year made an elaborate study of the conditions of public health and medical education in China. Its purpose is to systematize medical education in that country and to establish throughout it a series of American hospitals to be administered by American physicians and surgeons. To this end the Foundation has recently purchased for \$200,000 from the London Missionary Society, the Union Medical College at Pekin, and the first action of the China Medical Board will be to take over this institution and develop its work.

"Independent of the acquisition of the Pekin College, which the Foundation recognizes as its most important activity, the China Medical Board has made an appropriation of \$16,000 a year for five years to the Yale Medical College at Chang Sha, and has appropriated \$16,000 for one year to the Harvard Medical School at Shanghai, and also has appropriated similar sums to several missionary hospitals."

SUIT ON BEHALF OF TYPHOID VICTIMS.—In various issues of the JOURNAL during the fall and winter of 1913-14 we noted from time to time a serious epidemic of typhoid fever which arose in Rhode Island as the result of an excursion of a party aboard the steamer *Rochester* to the celebration of the Perry centennial at Buffalo, N. Y., in September, 1913. On June 18, 1915, a libel suit for \$265,000 damages was entered on behalf of forty-five residents of Rhode Island, victims of this epidemic, against the navigation company owning the *Rochester*. In this suit the company is charged with negligence as a result of which the epidemic occurred. At the time it was considered that the infection was due to impure drinking water provided aboard the steamer.

EUROPEAN WAR NOTES.—In the issue of the JOURNAL for June 17 we noted the critical condition of the King of Greece and the operation which was performed upon him for empyema. It has recently been reported that Dr. Richard P. Strong of the United States Public Health Service, now in Serbia, in charge of the American Red Cross typhus fever commission, was also summoned to see the king in consultation. It has recently been announced from Amsterdam by way of London that the king's other two consultants, Dr. Friedrich Kraus of Berlin, and Baron von Eiselsberg of Vienna, left Athens on June 19 giving a favorable prognosis of his condition.

The weekly report of the United States Public Health Service for June 18 states that during the week ended April 24, 1915, there were 347 cases of typhus fever in Austria-Hungary, chiefly among soldiers, prisoners and persons from Galicia. In Germany during the week ended May 8 there were 61 cases of the disease among German soldiers. Typhus is also reported as present among Russian prisoners in eleven districts and in Saxony.

On June 26, the totals of the two principal New England relief funds for the European war reached the following amounts:

Belgian Fund.....	\$264,468.26
Red Cross Fund.....	135,275.16

BOSTON AND NEW ENGLAND.

BOSTON DISPENSARY CLINICS.—A change is announced in the hours during which patients may be admitted to the morning clinics at the Boston Dispensary. Hereafter the doors will be open from 8.45 to 10.30 A.M., instead of from 9 to 11.

SMALLPOX IN NEW BEDFORD.—There has been recently a slight outbreak of smallpox at New Bedford, Mass. Since May 15 there have been ten cases and three deaths from the disease. All the patients were natives of Cape Verde. Only two of them had ever been vaccinated and except in these two cases the disease was of the most virulent type, four of the cases being hemorrhagic.

AWARDS TO MASSACHUSETTS HOSPITALS.—The recently published bulletin (No. 10) of the Massachusetts State Board of Insanity announces that at the meeting of the American Medico-Psychological Association at Old Point Comfort, Va., May 11 to 14, the committee on diversional occupation of the insane announced that in 1912, 6 hospitals took part in the exhibit held by the association; in 1913, 12 hospitals; in 1914, 14 hospitals; and at the present meeting, 1915, 32 institutions were represented. Of these 32 contributing institutions, 13 were from Massachusetts, 12 of these being State institu-

tions and one a private hospital. Awards were made by the committee. Fifteen certificates were awarded to Massachusetts institutions, three each to the Taunton and McLean Hospitals, two each to the Danvers and Gardner Hospitals and one each to the Worcester, Northampton, Westborough, Boston and Grafton Hospitals.

NEED OF FUNDS FOR THE INFANTS' HOSPITAL.

—In the issue of the JOURNAL for May 27, 1915, in reporting the work of the Infants' Hospital for the past year, attention was called to the need of this institution for an increased income, that the important service which it so efficiently renders to the medical and charitable work of the city should not be seriously handicapped. There are very few places with facilities for taking care of poor babies of the city. The Infants' Hospital is especially fitted for work of this character yet, because of lack of income, it has been obliged to refuse admission to an average of three babies each day. The hospital has a capacity of 65 beds and the estimated cost of running it at full capacity is \$28,500 a year. With 24 beds last year the cost was \$24,000. That is, an increase of one-fourth in the income will treble the work of the hospital. It is to be hoped that the generosity of its friends and well-wishers may enable it to realize its opportunities to their fullest capacity.

DR. CREEL AS BOSTON HEALTH COMMISSIONER.

—In the issue of the JOURNAL for May 13 we announced the acceptance by Dr. Richard H. Creel of the United States Public Health Service of the appointment as health commissioner of the city of Boston. In the issue of the JOURNAL for June 10 we published a further statement containing a letter from Dr. Creel in which he expressed the necessity of his declining this appointment on account of his health. It is now announced (on June 21) that Dr. Creel has decided again to reconsider his action and will accept the appointment as health commissioner of the city of Boston, for one year, beginning his duties in this position today, July 1. His salary is to be \$7500 a year.

TRAINING OF DENTAL NURSES.—At a meeting of the Massachusetts Dental Association in Boston on June 21, it was announced by Dr. Eugene H. Smith that during the ensuing year the Harvard Dental School will establish a course of instruction for dental nurses, since the registration of the latter has been provided for by recent legislation.

Dr. Charles F. Painter, also announced the appointment of a committee, on the part of the Tufts Dental School, to confer with a Harvard committee on the subject of courses in dental hygiene.

REPORT OF BOARD OF HEALTH OF WORCESTER, MASS.—The annual report of the Board of Health of the city of Worcester shows that for the year 1914 there were reported 349 cases of measles with 18 deaths, 313 cases of tuberculosis, 280 cases of diphtheria, 186 cases of scarlet fever with 5 deaths, 149 cases of ophthalmia neonatorum and 75 cases of typhoid fever with three deaths. The mortality rate for the year is 14.16 which is the lowest rate which the city has had during the last half century.

OPENING OF EVERETT TUBERCULOSIS HOSPITAL.

—On June 18 the new tuberculosis hospital erected by the city of Everett was opened for inspection. The hospital will accommodate 24 patients and is intended to care for advanced cases and those patients in the early stages of the disease who are awaiting admission to the state sanatoria. It is stated that a total of 75 cases has been reported to the board of health of the city. Adjoining the hospital is another building to be used for the admission of patients with other communicable diseases.

HONORARY DEGREES FOR PHYSICIANS.—Among the honorary degrees conferred on graduates at the recent commencement of Yale College is that of B.Sc. on Dr. Charles Wardell Stiles of the United States Public Health Service for his work in connection with pellagra and the hookworm disease.

At the commencement of Harvard College, on June 24, honorary degrees were conferred upon two physicians as follows:

MASTER OF ARTS:

ALEXANDER HAMILTON RICE, explorer of tropical America, adventurous and hardy, who heard the wild call of nature and revealed her hiding place.

DOCTOR OF SCIENCE:

FRANK BILLINGS, physician and citizen of Chicago; powerful in his profession and his community, who has inspired medical research, improved medical administration in his own State and promoted a higher grade of medical education throughout the land.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending June 15, 1915: Diphtheria, 68, of which 4 were non-residents; scarlatina, 105, of which eight were non-residents; measles, 221, of which 1 was non-resident; tuberculosis, 82, of which 2 were non-residents. The death rate of the reported deaths for the week was 15.59.

MOUNT SINAI HOSPITAL.

Through the generosity of an anonymous donor, a lectureship has been established at the Mount Sinai Hospital named after the late Dr. Edward G. Janeway, who was for many years associated with the medical staff. The foundation has been created for the purpose of inviting important investigators to present the results of their work to the staff of the hospital.

Massachusetts Medical Society.**ANNUAL MEETING OF THE COUNCIL.**

JUNE 8, 1915.

THE annual meeting of the council was held at the Copley-Plaza Hotel, Boston, June 8, 1915, at twelve o'clock noon. The president, Dr. Charles F. Withington, was in the chair, and the following 116 councillors present:—

BARNSTABLE,
E. E. Hawes, M.N.C.
C. W. Milliken.BRISTOL NORTH,
W. H. Allen, V.P.
R. D. Dean.
F. A. Hubbard, M.N.C.BRISTOL SOUTH,
C. A. Bonney, Jr., V.P.
E. F. Cody.
W. A. Dolan.
R. W. Jackson.
H. G. Wilbur, M.N.C.ESSEX NORTH,
R. V. Bakelite.
G. E. Kurth,
E. H. Noyes.ESSEX SOUTH,
C. H. Bangs.
R. E. Bicknell.
N. P. Breed.
D. J. Finnegan.
H. K. Foster.
Butler Metzger.
J. F. O'Shea, M.N.C.
H. E. Sears.FRANKLIN,
G. P. Twichell, M.N.C.HAMPSDEN,
T. S. Bacon.
J. M. Birnie.
R. S. Benner.
E. L. Davis.
M. B. Hodskins.
A. G. Rice.HAMPSHIRE,
J. S. Hitchcock.MIDDLESEX EAST,
C. J. Allen, M.N.C.
E. S. Jack.MIDDLESEX NORTH,
G. O. Lavallee.
W. P. Lawler.
A. G. Seborla.MIDDLESEX SOUTH,
W. D. Swan, V.P.
Albert August.
M. H. Balley.
F. E. Bateman.
J. E. Cleaves.
C. H. Cook.
E. A. Darling.
G. W. Gay.
C. M. Hutchinson.**MIDDLESEX S. (Continued)**J. B. Lyons.
S. F. McKeen.
C. E. Mongan.
C. E. Prior.
Godfrey Ryder.
Joseph Stanton.
E. H. Stevens, M.N.C.
J. O. Tilton.
Julia Tolman.
C. T. Warner.
Alfred Worcester.**NORFOLK.**M. V. Pierce, V.P.
E. F. Bartol.
E. H. Brigham, Libra.
A. N. Broughton.
P. W. Carr.
H. C. Ernst, C.
E. W. Finn.
G. W. Kaan.
Bradford Kent.
Harry Linenthal.
T. J. Murphy, M.N.C.
A. P. Perry.
W. H. Robinson.
M. J. Rosenau, C.
T. M. Shay.
F. W. Sleeper.
E. P. Starbird.**NORFOLK SOUTH,**C. S. Adams.
J. C. Fraser.**PLYMOUTH.**A. A. McKeen.
Gilmian Osgood.
F. J. Ripley.
F. G. Wheatley.**SUFFOLK.**E. S. Boland.
H. I. Bowditch.
G. W. W. Brewster.
E. M. Buckingham, T.
W. L. Burrage, S.
David Cheever.
H. A. Christian.
A. L. Chute.
E. A. Codman.
J. A. Cogan.
G. A. Craizin.
E. G. Cutler.
R. L. DeNormandie.
Albert Ehrenfried.
C. Frothingham, Jr.
C. M. Green, C.
W. C. Howe.
H. T. Hutchins.
Henry Jackson.
R. W. Lovett.
J. L. Minot, M.N.C.**SUFFOLK (Continued)**Abner Post.
Anna G. Richardson.
D. D. Scannell.
G. C. Smith.
P. M. Smith.
H. F. Vickery.
C. F. Withington, P. C.**WORCESTER.**F. H. Baker.
W. P. Bowers.
J. T. Duggan.V.P., Vice-President *ex-officio*.
M.N.C., Member Nominating Committee.
C., Chairman of a standing committee.**WORCESTER (Continued)**W. J. Delahanty.
David Harrower, M.N.C.
W. L. Johnson.
C. D. Wheeler.
L. F. Woodward.
S. B. Woodward, V.P.**WORCESTER NORTH.**C. E. Bigelow.
A. P. Mason.
E. A. Sawyer, M.N.C.

The minutes of the last meeting were read and accepted.

The names of the Nominating Committee were read by the secretary, and the committee retired.

Dr. C. M. Green read the following report:

The COMMITTEE ON MEMBERSHIP AND FINANCE makes the following recommendations:

1. That the following-named Fellows be allowed to retire, under the provisions of Chapter I Section 5, of the by-laws:

Hood, Mary Gould, of Newton Centre.
MacMillan, Andrew Louis, of Hanover.

2. That the following-named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the by-laws:

Albert, Lionel Louis, of Central Falls, Rhode Island.
Cumston, Charles Greene, of Geneva, Switzerland.
Graustein, Charles Israel, of Brockton.
Mitchell, Mary Paulsell, of Warren, Pennsylvania.
Porter, William Townsend, of Dover.
Wood, Mary Anna, of Pittsfield.

3. That the following-named Fellows be allowed to change their district-membership without a change of legal residence, under the provisions of Chapter III, Section 3, of the by-laws:

Alexander, Thomas Branch, of Scituate Harbor, from Plymouth to Norfolk South
Breslin, John George, of Charlestown, from Middlesex South to Suffolk.

Bryant, John of Cohasset, from Norfolk South to Suffolk.

MacCallum, Wallace Peter, of Dorchester, from Norfolk to Suffolk.

Parks, Edward Luther, of Roxbury, from Norfolk to Suffolk.

Schirmer, Joseph Walter, of Needham, from Norfolk to Suffolk.

Smith, George Carroll, of Norfolk District, from Norfolk to Suffolk.

For the Committee on Membership and Finance.

CHARLES M. GREEN, *Chairman.*

Voted, To accept the report and adopt its recommendations.

The reports of the committees appointed at a previous meeting to consider the petitions of the following named for restoration to the privileges of fellowship were acted on favorably: F. X. Mahoney, J. A. Ceconi, E. O. Tabor, C. H. Phillips, J. J. Sullivan, R. F. Burns. Petitions of the following named to be restored to the privileges of fellowship were assigned to committees of three each: F. H. Lally, A. V. Lyon, Ada H. Tedford, S. H. Rubin.

Dr. H. C. Ernst read the following report and it was accepted by vote:

I beg to present herewith the report of your COMMITTEE ON MEDICAL EDUCATION AND MEDICAL DIPLOMAS for the past year.

Your delegate attended the Eleventh Annual Conference of the American Medical Association on Medical Education and the meeting of the Association of American Medical Colleges, which was closely associated with the meeting of the Federation of State Medical Boards of the United States. These meetings took place in Chicago on February 15, 16, and 17, 1915. The programs are herewith appended.

Perhaps one of the most interesting contributions was that of Dr. Henry S. Pritchett on "The Classification of Medical Schools," the full suggestion of which can be obtained only by reading the article itself. (*Journal of the American Medical Association*, Vol. lxiv, No. 12, p. 961.) The gist of it is a criticism of the methods followed and the results obtained in the classification under their headings A plus, A, B and C as published by the Council on Medical Education. The tenor of the contribution is indicated by the first paragraph and the conclusion, the former of which reads as follows:

"The desire to classify seems to be a universal human motive. In education, in politics, in society, men reach out for some form of classification that shall be definite and specific, so that every cause may have its right label, every party its true name, and every institution be included in its proper class."

Before quoting the conclusion, this question and answer furnishes further indication of the tenor of the paper:

"Can medical schools, any more than colleges, be classified into sharply divided classes? This question lies at the root of the whole matter. In reply I would say that, in my judgment, nobody is so well prepared to carry out such work as a body which represents the medical profession. Reform in medical teaching, like all other reform which is genuine, will come from within, not from without. No other group of men, in my judgment, could hope to do what the Council on Medical Education has accomplished. I believe, as I have already said, that the Council has suffered in its work by a lack of touch with the educational conditions with which it has been dealing. It can, I believe, improve its future legislation by availing itself of a closer knowledge of schools and colleges, but I question whether any group of men, however qualified, can make a hard and fast classification of medical schools which would not be open to serious criticism. In other words, the problem of classifying schools into four or five groups on such criteria as the Council has assumed seems to me practically insoluble. It has served its day and some looser form of grouping seems now desirable."

The conclusion states the matter from a very broad point of view:

"Let me say one word in regard to such criticism as I have made of the Council on Medical Education. I have spoken concerning the work of the Council with great frankness for the reason that no other course is worth following, and in the belief that progress comes only by the frank and honest expression of opinion in regard to such matters. I have such high regard for the work of the Council and for the work of its Chairman that I take a keen interest in the preservation and development of the Council's work—a work which seems to me liable to fall from its own weight if the classification proceeds along the present lines. I hope, as a layman in medicine, that it is not impertinent of me to discuss these matters, since they are primarily questions of education, and I hope also that it may be admitted that the sincerest service a friend can perform with respect to the work of the Council is to speak in a critical, and yet in a friendly way concerning those directions in which, it seems to him, the dangers lie. The interests of

education in our nation are one. Education itself is one thing, from elementary school to university, and medical education in its largest and truest sense can be approached wisely only when one keeps this fact in view and regards medical education in its true perspective as a part of the whole problem of education of the American nation."

This undoubtedly was the most important of the contributions to the meeting of the Association of American Medical Colleges.

Another discussion of interest that took place was that which considered some fallacies in the arguments against full-time clinical instruction, the matter being opened by Dr. M. G. Seelig of St. Louis. It cannot be stated that the feeling of the meeting was much influenced by this discussion, but the special point in favor of the procedure is made in the observation that "those who favor the plan of full-time clinical instruction are influenced in no small part by the hope that the properly qualified clinical teacher will foster, stimulate and direct clinical research of a higher order than is commonly produced at present. To encourage scientific clinical research, therefore, the clinical teacher must be provided with an environment as favorable as that of the fundamental teacher."

The more important parts of the program of the Conference on Medical Education were made up by the report of the Committee on the Reorganization of Clinical Teaching, presented by Dr. Victor C. Vaughan; that on the University and Higher Degrees in Medicine, presented by President George E. Vincent of the University of Minnesota; and that on Courses and Degrees in Public Health Work, presented by Professor M. J. Rosenau of Boston.

The methods by which clinical teaching is to be improved is considered in the report under the following headings:

1. The provision of adequate hospital and dispensary facilities.
2. The need of an adequate financial income.
3. The readjustment of the place in the curriculum in which prescribed clinical instruction shall be begun.
4. The use of the dispensary.
5. The organization of the hospital units.
6. The utilization of students as clinical clerks in hospital wards.
7. The utilization of special and extramural hospitals.
8. In the co-ordination of departments in teaching.
9. The limiting of the practice of the clinical teachers.

And in conclusion the writer of the report says:

"Whatever may be said regarding the practicability of limiting the practice of clinical teachers, the other propositions dealt with in this paper have to do with improvements which are well within the reach of the majority of medical colleges. To construct a reasonable working standard for immediate adoption, and another, more ideal standard, for adoption sometime in the early future is the chief function of this Committee on the Reorganization of Clinical Teaching. (*Journal of the American Medical Association*, Vol. lxiv, No. 10, p. 785.)

In taking up the matter of higher degrees in medicine, President Vincent recognizes the practical difficulty encountered by those interested in this subject—that of differentiating between the requirements of graduates in medicine, who need what may be called "brushing-up" courses and those who wish to pursue a serious line of study in some specialty in medicine, which is worthy of the same recognition that is given to similar efforts leading to the higher degrees in academic departments of the universities—Ph.D., for example. It is only for these latter that the present existing higher university degrees should be considered, and whether or no it is advisable to establish and to grant degrees in specialties is a matter that is still open to serious consideration and discussion. (*Journal of the American Medical Association*, Vol. lxiv, No. 10, p. 790.)

The contribution of Professor Rosenau on Courses and Degrees in Public Health Work embodies a description of the work being carried on in Boston by the School for Health Officers, an enterprise conducted by Harvard University and the Massachusetts Institute of Technology, acting in co-operation through an Administrative Board appointed for this purpose by both institutions, and emphasizes the fact that public health work is becoming a separate profession, and that public health service, as a career, must be made an end in itself. (*Journal of the American Medical Association*, Vol. lxiv, No. 10, p. 794.)

These were the points that especially attracted the attention of your delegate at the meetings in Chicago.

So far as the work of your Committee has concerned itself with medical diplomas, it is well to say that, in accordance with the vote of the Council passed in June, 1914, "that the Committee on Medical Education and Medical Diplomas has power to recognize a medical degree coming from a not recognized medical school, presented by a candidate for Fellowship in The Massachusetts Medical Society, provided such candidate has practised in a given locality for a minimum of five years, has proved himself to be a skillful and conscientious practitioner of medicine, and is recommended by a number of his neighbors who are already Fellows of the Society," a number of holders of such degrees have been approved for examination by the Censors. The Committee has adopted the following form of vote to cover these cases:

"Voted: To recognize the degree of of for the purposes of his examination by the Censors for Fellowship in the Massachusetts Medical Society. The action of the Committee was based upon information received in letters written by Fellows of the Society endorsing's professional and personal qualifications."

The Committee desires to remind the Secretaries of the District Medical Societies that the Council has vested the authority to approve holders of these non-recognized diplomas in the Committee on Medical Education and Medical Diplomas and not in the Secretaries of the District Medical Societies and that, if the Secretaries will recognize this fact and submit the credentials of applicants holding these non-recognized degrees to the Committee before allowing the holders to come up before the Censors for examination, some confusion and delay may be avoided in the future. Respectfully submitted,

HAROLD C. ERNST, *Chairman.*

Dr. A. K. Stone presented the accompanying report and it was accepted:

THE COMMITTEE ON STATE AND NATIONAL LEGISLATION respectfully reports on its activities during the year as follows:

The Committee has had a busy year. The 1914 legislature did not adjourn for nearly a month after the annual meeting of the Society, and it was a very strenuous time for the Committee, with legislative hearings and conferences regarding the reorganization of the Department of Health. The bill which finally passed the Legislature, while it was by no means the complete act which had been drawn by Dr. Rosenau and considered and amended by your Committee, nevertheless accomplished the main objects for which legislation was desired, and enabled the new department to start on a much better business basis than was possible under the previous law. Governor Walsh kept the letter of his promise made to the Society in his speech at the last annual dinner, and the Committee was frequently in conference with him until he selected Dr. Allan J. McLaughlin, of the U. S. Public Health Service, for the position of Commissioner of Health; and later, when he selected the Advisory Council, which consisted of William T. Sedzweik of the Massachusetts Institute of Technology, George C. Whipple, a sanitary engineer of Harvard, David L. Edsall, Harvard Medical

School, William J. Gallivan, of Boston, Joseph E. Lamoureux, of Lowell, and Milton J. Rosenau, of the Harvard Medical School. The whole attitude of the Governor toward the reorganization of the Health Department was on the high plane of public efficiency.

Too much praise cannot be given to Dr. E. H. Bigelow, of Framingham, for his work in the Legislature, where his never-failing patience, persistence and good nature had much to do with making this legislation possible.

With the entrance of the Legislature of 1915, new work at once began. The dominant political party decided that as far as possible it would undertake no new legislation, that it would create no new commissions, that there were certain problems that must be settled, and that when these and the appropriation bills were passed, the Legislature would adjourn. To a great extent this program has been adhered to. While it was easy to have undesirable legislation killed off, it was at the same time more difficult to have desirable legislation considered.

As a result of this, and because many health laws had been passed during the past few years, there were fewer measures than usual which concerned the attention of the Committee, but several of these were, nevertheless, of much importance to the medical profession.

There were about thirty measures which were considered by your Committee. Some of these were opposed either by letter or by appearing in opposition before the appropriate committee. In like manner it was voted to approve of a certain number of measures, either directly or by letters which signified the approval of the Committee to the persons who had the measures actually in charge.

The usual bills were introduced to make special provision for irregular practitioners, and one of these which was designated (as its proponents frankly acknowledged) for special legislation for one individual: a so-called Chinese doctor. This bill was pushed and fought for with a most singular determination which was a marked commentary on the grip that the irregular in medicine has upon the minds of many people.

There was the regular anti-vaccination bill, which was defeated more easily than last year. An anti-vivisection bill made its appearance and was met by the men from the medical schools most interested in this question.

One measure was aimed directly at the Massachusetts Medical Society. On petition of one John J. Tallant, a bill was introduced that all registered physicians should be eligible for membership in all chartered state medical societies. This bill was supported by a member of this Society, who was a professor in the College of Physicians and Surgeons Medical School.

The tuberculosis legislation of the state was attacked by several minor bills, early in the session. These made no headway at the time, but in the last days of the session, a more determined move was made by certain cities that wished to avoid compliance with the law. When, however, the true facts of the case were presented to the various legislative committees, they, by a resolve which was passed by both branches, referred the matter of hospital construction in the case of the smaller cities to the Department of Health, to report upon to the next Legislature. In the meantime, it is hoped that the plans already made for compliance with the law relative to hospital construction will be carried out by many cities, so that there will be only a small number of communities which will have to be arranged in groups by the Department of Health; for it seems to your Committee that this is primarily a municipal question, and rarely one that can be solved by a group hospital.

During the year, the so-called Harrison Anti-narcotic Act was passed by Congress, and went into effect on March first. Your Committee had correspondence with the senators regarding certain amend-

ments to this act which should make it less onerous in its working as far as the practitioners of medicine were concerned. Later, it was found that the State law regarding narcotics was much at variance with this act, and that it was desirable to modify the State law so as to conform to the reading of the Harrison Act. This was done with the addition of cannabis indica to the drugs which must be reported, as it was thought that there were signs that dope fiends were, under the increasing difficulties of securing opium and cocaine, shifting to hashish. During the process of legislation on this anti-narcotic law, an event occurred which showed what a power the medical men have if they are really in earnest on a legislative matter. The physicians of the state received a circular from a drug firm, calling attention to a variation in the proposed law from the actual reading of the Harrison Act. It was really not an important change, although it was much better that the Harrison Act should be followed, and it was so understood at the conference which I and others had had with the committee of the Massachusetts State Pharmaceutical Society, which was directly responsible for this legislation. The statements in the circular I refer to were overdrawn as to the effect on the physicians, but the medical men became aroused and letters poured in at the State House in such numbers that the sponsors of the bill quickly saw that something must be done at once to save it; and after several hurried conferences, the bill was withdrawn from the house and amended in committee. Such is the effect of united medical action. It is one reason why our friends, the Christian Scientists, anti-vaccinationists and various irregular practitioners are more powerful than the regular profession; they appear in clamoring hordes and are opposed by the well-known small group of members of your Committee.

The Massachusetts Dental Society secured the passage of an act to revise the law relative to the practice of dentistry and they are to be congratulated on this result.

A bill for the amendment of the laws regulating the practice and registration of nurses failed to get by the Committee because the nurses and the medical men and the interested general public are not agreed as to what is desirable in the way of legislation. Therefore the legislators prefer to keep the present inadequate law until some common agreement can be reached.

The so-called Clean Milk Bill, introduced by the Central Labor Union, was a simple bill for the protection of the consumer, by placing the responsibility for the production of milk in the hands of local boards of health or the State Department. There was criticism that there was no penalty and no provision for the expenses of inspection, and in certain cases there might be a clash in authority between the local boards and the State Department of Health. This bill, amended to meet the requests of the agriculturalists, was passed, only to be vetoed by the Governor, who was influenced by the violent opposition of many dairymen who threatened to go out of business if the bill were passed, and to make the state practically dependent on out-of-state dairies in the immediate future.

Previous to this, propositions from the Governor and others to have a new commission to study the milk question, were turned down by the legislature in accordance with the caucus vote that there should be no new commissions this year. It may be well to remark that the medical men in the legislature were not united in their attitude regarding milk legislation.

The most important positive act of constructive legislation that passed this year was that by which any person wishing to be registered in Massachusetts as a physician must henceforth be a graduate of a properly incorporated medical school. Massachusetts was the third state this year to pass such a law, Tennessee and Washington being the other

two, and Massachusetts was the next to the last state in the Union to make this requirement. Colorado is now the only state left without such a law. The success of this measure was due to the indefatigable work of Dr. Bowers, the secretary of the Board of Registration, while in the Legislature, Dr. Nickerson of Harwich and Dr. Frothingham of Lynn did hard fighting on the floor of the house and much personal work in both branches of the Legislature. The profession at large had also much to do with the final result, for they let their opinion be known in no uncertain manner to their senators and representatives; especially was this so in New Bedford, Fall River, Cambridge, Boston and Lawrence.

The work in many respects has been discouraging, because in spite of the good work of Dr. Hart, the House Chairman, and of the energetic work of Dr. Nickerson, who has won a strong position in the house during this, his first term, the Public Health Committee has not had the influence it should. It was rarely that more than five men attended the hearings; in fact, several men practically never were seen, and the chairman had to poll the committee in the lobbies and anterooms, rather than in the committee room. It is to be wondered at that the few active members were able to do as well as they did, and they deserve much credit for all that they accomplished.

The thanks of the Committee are due to the forty members of the Auxiliary Committee, many of whom worked hard to make their senators and representatives realize medical opinion, and often were able to direct the expression of general public opinion in favor of sound public health measures.

Respectfully submitted,

ARTHUR K. STONE, *Secretary.*

Dr. M. J. Rosenau read this report and it was accepted:

ANNUAL REPORT OF THE COMMITTEE ON PUBLIC HEALTH.

The Committee on Public Health presents the following report:

Owing to radical changes in the health administration of the state, the Committee has considered it wise to follow a waiting, rather than an aggressive policy, throughout the year, feeling that by doing so, a more helpful campaign might be made later when the plans of the State Commissioner of Health were better understood and intelligent co-operation more easily established. It was also thought better not to push health legislation this year, because of a similar decision by the Commissioner of Health and the Public Health Council.

It is the unanimous opinion of the Committee on Public Health that perhaps the most pressing need is for competent health officers throughout the Commonwealth. There should be a qualified sanitarian in each city, town and rural district, to guide and instruct the people in the art of hygienic living and to administer the health laws. The Committee has, therefore, in all its work throughout the year, endeavored to emphasize this point and to stimulate action along these lines. Several full-time and specially trained health officers have been appointed, notably at Waltham and Watertown.

Letters have been sent to the secretary of each county district medical society asking that talks be given to the public on various matters relating to public health, such as the prophylaxis of typhoid fever and other communicable diseases, the discussion of infant mortality. Also, urging the consideration of each district medical society regarding the importance of the prevention and early diagnosis of cancer, and of tuberculosis. Many of the societies are considering these subjects.

The work of the Committee on Public Health Education Among Women, of the American Medical Association, was referred by that Association to each state as part of the work of the state medical society. The Committee on Public Health has therefore ap-

pointed Dr. Abbie Noyes Little of Newburyport to conduct a campaign along these lines. Dr. Little co-operated with the Department of Public Health of the Woman's Municipal League of Boston in arranging a course of five health lectures during February and March. These were held at the League rooms and were successful.

At the request of the Committee on Philanthropies of the Massachusetts Federation of Churches, members of the Public Health Committee of the Massachusetts Medical Society met with them to see if some method of co-operation might be devised whereby the doctors and ministers throughout the state might cooperate for the benefit of their local communities.

It was voted: That it is the sense of the meeting:

1. That more intimate and practical co-operation should be established and maintained between the Massachusetts Federation of Churches and the Massachusetts Medical Society, for the purpose of improving the health of this commonwealth.

2. That the churches of every community (through their local federation where one exists) should consult and co-operate with its physicians in matters of public health.

3. That the fundamental need is that of a competent health officer in every city, township or group of towns.

4. That whatever specific local needs in the line of health are discovered, should be taken up, both educationally and practically, by co-operation of the churches and the physicians.

Following the meeting, addressed by a member of the Committee have been made at three Social Institutes arranged by the Federation of Churches. One was at Springfield, one at Littleton and one at Middleboro. In all three the emphasis of the talk was upon the need of especially trained, full-time health officers in all cities and towns throughout the commonwealth. It is expected that this method will reach many people outside of the medical profession, rousing interest in various problems having for their object the improvement of the sanitary and social conditions of the people.

The Chairman of the Committee was a delegate to the Conference of the American Medical Association on Public Health and Instruction (including medical legislation) at Chicago, Feb. 15 and 16. Also the Chairman made an address on "Courses and Degrees in Public Health" at this Conference, the proceedings of which have been published in full in the *Journal of the American Medical Association* and are not detailed herewith.

The Committee regrets the resignation of its valued member, Dr. Mark W. Richardson. Having been Chairman since the beginning of its work, he was particularly fitted to meet the various questions arising from time to time.

Respectfully submitted,

M. J. ROSENAU, *Chairman.*

Dr. Lincoln Davis reported for the Committee on Hospital Efficiency as follows:

At the Annual Meeting of the Council in 1914, the President was empowered to appoint a Committee on Hospital Efficiency, to consist of five members with instructions as follows:

1. To make a report at the annual meeting of the Council in 1915, as to the present state of medical and surgical efficiency of the hospitals of Massachusetts, as far as can be determined from the annual reports of these institutions.

2. To obtain from the superintendent of each institution, a statement as to which individual or departments are held responsible for a high standard of results in the medical and surgical treatment of their cases.

3. To obtain from each individual or department an answer to this question: "Will you adopt some simple form of morbidity report for in-patients, if the majority of hospitals of the state agree on a uniform plan?"

Your Committee has endeavored to comply with these instructions, and begs leave to submit the following report:

In answer to the first instruction, we find that the annual reports of the Massachusetts hospitals, so far as we have been able to get at them, are with very few exceptions made upon the same general plan; a plan which conveys little definite information for the determination of the value or efficiency of the work done by the medical or surgical staffs. There is no uniform system of classification, so that comparisons are quite impossible, and an accurate knowledge of what is meant to be included under the different headings, is exceedingly difficult to obtain. Some idea of the relative frequency of different diseases and injuries in a given community, and the immediate hospital mortality, are all that can be gained from the best of the hospital reports, as at present prepared.

In answer to the second instruction, out of 146 letters of inquiry, 52 hospitals were not heard from at all; 17 did not specifically answer the question asked. Of those who replied, four said the responsibility rests with the superintendent; four, that it rests with a committee of the trustees; 14, with an executive committee; 17, with one member of the staff or chief of staff; and nine, with the medical and surgical staff. In nine cases it was said that each individual was responsible for his own cases, and in 20, that the responsibility was not fixed.

The character of the replies would lead your Committee to believe that in most instances the responsibility is purely nominal.

In answer to the third instruction, your Committee finds a very surprising and gratifying unanimity of sentiment in favor of a uniform system of morbidity reports, each institution, very properly, of course, reserving its final decision until some definite plan is submitted, but practically all expressing sympathy with the idea, and a willingness to co-operate in any plan that is practical and not too expensive or burdensome.

Having thus complied, as far as possible, with the instructions of the Council, your Committee would venture to suggest that in its opinion there are three important ways whereby the medical and surgical efficiency of the hospitals of the state may be increased.

First, by definitely fixing the responsibility for the results of hospital treatment.

Of the different plans for securing a direct personal responsibility, the Committee believes the most efficient and the best, is the establishment of a continuous service or services, with a chief or chiefs, who shall render an account of service to the board of trustees to be published as a part of the annual report.

Second, by the establishment of a follow-up system, whereby the end results of treatment may be learned and reviewed, and if practicable, published.

Third, by the adoption of a uniform classification of diseases, and form of morbidity report.

We beg leave, therefore, to submit the following recommendation:

That the appointment of a Committee be authorized by the Council, to consist of representatives of the medical and surgical and administrative departments of the hospitals of the state, to further consider the means of increasing their medical and surgical efficiency along the lines suggested, and to prepare a plan of uniform hospital report, which, upon the approval of the Council, should be recommended to the favorable consideration of the hospitals of Massachusetts.

Respectfully submitted,

HOMER GAGE, *Chairman.*

P. P. JOHNSON

P. E. TRUESDALE

J. T. BOTTOMLEY

LINCOLN DAVIS, *Secretary.*

Moved, To accept the report and adopt its recommendation.

The president reappointed the same committee to carry out the recommendation of the report.

Dr. W. P. Bowers presented the subjoined motion, explaining that it was not the purpose to interfere with any committee of the Society, but on the contrary, to assist by providing an executive officer, the rights of the Society being, in his opinion, safeguarded:

Moved, That a committee consisting of the President, the Secretary, the Treasurer, the Chairman of the Committee on Membership and Finance, and the Chairman of the Committee on Public Health, be and hereby is elected with full power to confer with Mr. Henry Copley Greene, Dr. Arthur B. Emmons, 2d, Mr. Carl Carstens, and Miss Mary Beard, or any of them, and when deemed advisable may accept and disburse such funds as may be donated to the Society by or through the above mentioned Greene, Emmons, Carstens, and Beard, or any other persons, for the purpose of hiring an agent who shall, under the direction of this Committee of the Massachusetts Medical Society, assist in the dissemination of information, and in the carrying on of any function of the Society, in public health work, legislation, social service, or similar departments of effort.

Dr. Dolan was opposed to the motion, for he thought it would not bring about a proper solution of the midwife question. On being put to a vote the motion was carried.

Dr. Gay spoke of the valuable services rendered by Fellows of the Society in the defence of malpractice suits against members and introduced the following motion which was passed unanimously:

Moved, That the thanks of the Council of the Massachusetts Medical Society be, and they hereby are, extended to the following Fellows for their unselfish and efficient services as experts in defending suits for malpractice in the courts against Fellows of this Society: Drs. G. B. Shattuck, F. S. Newell, F. J. Cotton, J. B. Blake, G. W. W. Brewster, H. A. Lothrop, A. W. George, C. J. White, W. J. Dodd, F. S. Burns, of Boston, Drs. E. H. Stevens of Cambridge, C. E. Prior of Malden, and H. W. VanAllen of Springfield.

REPORT OF THE LIBRARIAN.

The Librarian reports that during the past year he has attended to the various duties of his office, sending the publications to Fellows who have paid for preceding years and reporting payments to the publishers of the BOSTON MEDICAL AND SURGICAL JOURNAL so that the JOURNAL may be promptly received.

A directory of the Officers and Fellows was compiled and issued as a supplement to the JOURNAL. It is hoped that the Fellows will report at once any change of address in order that the Directory for 1916 will be as accurate as possible.

Respectfully submitted,

EDWIN H. BRIGHAM, Librarian.

Voted, to accept the report.

Dr. C. M. Green introduced this amendment to the by-laws on behalf of the Committee on Membership and Finance and action on it was deferred until the October meeting of the Council:

The Committee on Membership and Finance respectfully recommends the following change in the by-laws, to wit, in Chapter VII, Section 3, that the word "June" in the last line of the fourth paragraph be changed to "March," so that the clause shall read:

"This dividend shall be apportioned among the district societies according to the number of annual assessments which shall have been paid to the district treasurers previous to March first."

Dr. C. J. Allen referred to the activity of the *Journal of the Association of Retail Druggists* in advancing a propaganda restricting the dispensing of all drugs and remedies to pharmacists, and offered the following motion:

Moved, That the chair appoint a committee of three who shall investigate the advisability of employing legal aid in safeguarding the interests of the Society in matters that may come before the Massachusetts Legislature. They shall ascertain the approximate cost of such aid and report with recommendations to the next meeting of the Council.

On being put to a vote the motion was carried by a vote of 63 in favor and 23 opposed. Thereupon the president appointed this committee: C. J. Allen, G. W. Gay, C. M. Green.

The Nominating Committee brought in this list of officers and on proceeding to ballot they were declared elected:

President, Charles F. Withington, Boston; Vice-President, Edmond F. Cody, New Bedford; Secretary, Walter L. Burrage, Boston; Treasurer, Edward M. Buckingham, Boston; Librarian, Edwin H. Brigham, Brookline; Orator, David L. Edsall, Boston.

On nomination by the president the following Standing Committees were appointed for the ensuing year:

Of Arrangements.—J. D. Barney, E. L. Young, Jr., J. H. Young, J. L. Huntington, R. H. Miller, C. H. Lawrence, Jr.

On Publications and Scientific Papers.—G. B. Shattuck, E. W. Taylor, R. B. Osgood, J. S. Stone, F. T. Lord.

On Membership and Finance.—C. M. Green, A. Coolidge, Jr., Samuel Crowell, F. W. Taylor, Alfred Worcester.

On Ethics and Discipline.—J. A. Gage, J. W. Bartol, Henry Jackson, G. deN. Hongb, S. B. Woodward.

On Medical Education and Medical Diplomas.—H. C. Ernst, C. F. Painter, H. W. Newhall, J. F. Burnham, C. Frothingham, Jr.

On State and National Legislation.—C. F. Withington, F. G. Wheatley, G. W. Gay, A. K. Stone, W. P. Bowers.

On Public Health.—M. J. Rosenau, W. I. Clark, Annie L. Hamilton, E. H. Bigelow, R. I. Lee.

Adjourned at 1.26 p.m.

WALTER L. BURRAGE, Secretary.

Miscellany.**REGISTRATION OF PHYSICIANS IN MASSACHUSETTS.**

THE following is the complete text of the act recently passed by the Massachusetts General Court relative to the qualifications for registration of physicians in this state.

"Section 1. Section three of chapter seventy-six of the Revised Laws, as amended by chapter three hundred and forty-six of the acts of the year nineteen hundred and thirteen, is hereby further amended by striking out all after the word 'applicants,' in the third line, down to and including the word 'secretary,' in the eleventh line, and inserting in place thereof the words:—Applicants for registration under this act, who shall furnish the board with satisfactory proof that they are twenty-one years of age or over, and of good moral character, and that they have received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school having the power to confer degrees in medicine, shall, upon the payment of a fee of twenty dollars, be examined, and if found qualified by four or more members, shall be registered as qualified physicians, and shall be entitled to certificates in testimony thereof signed by the chairman and secretary,—so as to read as follows:—*Section 3.* Applications for registration shall be made upon blanks to be furnished by the board, and shall be signed and sworn to by the applicants. Applicants for registration under this act, who shall furnish the board with satisfactory proof that they are twenty-one years of age or over, and of good moral character, and that they have received the degree of doctor of medicine, or its equivalent, from a legally chartered medical school having the power to confer degrees in medicine, shall, upon the payment of a fee of twenty dollars, be examined, and if found qualified by four or more members, shall be registered as qualified physicians, and shall be entitled to certificates in testimony thereof signed by the chairman and secretary. An applicant who fails to pass an examination satisfactory to the board, and is therefore refused registration, shall be entitled within one year after such refusal to a re-examination at a meeting of the board called for the examination of applicants, without the payment of an additional fee; but two such re-examinations shall exhaust his privilege under his original application. Said board, after hearing, may by unanimous vote revoke any certificate issued by it and cancel the registration of any physician who has been convicted of a felony or of any crime in the practice of his profession. The board may subsequently, but not earlier than one year thereafter, by a unanimous vote, reissue any certificate formerly issued by it or issue a new certificate, and register anew any physician whose certificate was revoked and whose registration was cancelled by the board. All fees re-

ceived by the board shall, once in each month, be paid by its secretary into the treasury of the Commonwealth.

"Section 2. This act shall take effect upon its passage. (Approved May 28, 1915.)

In conjunction with the above it is noted in the recent bulletin (No. 10) of the Massachusetts State Board of Insanity that that board has taken up with the board of registration in medicine the question of employing unregistered internes and physicians, there having been some query as to the legality of this procedure.

The Board is able to report that all staff physicians must take an examination and register in July, or else they will be liable to prosecution for practicing without a license.

As to internes, we quote from a letter from the Board of Registration in Medicine under date of June 2, as follows:—

"Internes who are to all intents and purposes students would not be required to become registered, but if a man receives a salary which is paid because of his medical knowledge, and does exercise his medical knowledge, then he is practicing medicine as defined in the law and must be registered.

"This Board is not inclined to push this matter up to the point of splitting hairs, and is only dealing with the question when the evidence is clear.

"We are anxious to secure a conference of the hospital authorities and have the law amended so that there will be no harm done to any honorable person and that every person concerned can know exactly what is meant under the law."

With this end in view the Board of Insanity has asked the secretary of the Board of Registration in Medicine to meet in conference with the medical men of the state institutions under the State Board and discuss the whole matter.

Correspondence**PARIS LETTER.**

"SPRING AS USUAL"—NOTWITHSTANDING THE WAR!

(From Our Special Correspondent.)

PARIS, May 31, 1915.

Mr. Editor: After a winter unaccustomedly protracted even for this part of the world, spring has at last suddenly unfolded its beauty to our eyes in a single burst. This resembles a little what is said to take place in the far North, where the growth is held back so late, and has to accomplish so much in such a very short period, that on a perfectly still night you can hear the buds opening and the new leaves unfolding their blades. The Scandinavian God, then, who could see at a hundred leagues, and hear the grass growing in the fields and the wool on the sheep's back, was not so entirely a creature of fancy as might be imagined. We under this degree of latitude have to endure much in the way of winter gloom, the chilly dampness; but I must confess that I am sometimes almost prepared to admit that it is worth

while going through all of this, to be finally rewarded by such a sight as the beauty of Paris in early May. In fact, from the look of the Avenue in the morning hours, with its luxuriant vegetation and new wood pavement, the men leisurely cutting the lawns, the thousands of prettily-dressed children with their nurses, and the cavaliers and ladies passing to and from the Bois, no one would dream we were in the midst of the most deadly war ever waged; the only strange note in this Spring-harmony is the deep musical whirr of the aeroplane sentinel as he patrols back and forth high up above our heads with his vast wings glistening in the sun.

It would, I think, be difficult to find in any large city such lovely prospects, in their fresh green of spring, as the Parc Monceau, the reach from the Luxembourg to the Observatoire, the Avenue du Bois, and the island in the big lake in the Bois de Boulogne; these stretches were laid out by a consummate artist, the variety and coloration of the trees on the island being in particular something quite extraordinary. I once knew some people who lived high up above the horse-chestnuts on the Avenue de l'Observatoire; I never saw a more charming sight than to look down in spring on those undulating treetops covered with red or white conical inflorescences and watch them gently dip and rise before the puffs of wind, exactly like the waves of the sea. I wonder whether any of you have had the good fortune to notice the wondrous spectacle that surrounds at this season the main *pièce d'eau* just back of the Luxembourg palace, where tier upon tier of lilacs, hawthorn and horse-chestnuts, in both their varieties of pink and white, are massed in a vast hemicycle? There are also certain drives in the Bois where after any violent shower the pink or white blossoms of the acacia or horse-chestnut are beaten down in such quantities as to form for a day or so a smooth, even, colored carpet beneath the trees.

Just outside of my bedroom window stands a solitary acacia in the neighboring garden, a tree that has come sadly down in the world, one of the few straggling survivors of the woods that once covered this western slope of the hill now crowned by the Arc de Triomphe. Promptly at the first suspicion of dawn, earliest of all his congeners, a blackbird perches himself on the topmost bough, and during a brief period pours forth amid the uncanny stillness his exquisitely liquid notes. The blackbird is in this part of the world the uncontested leader among the feathered songsters, and whether at the break of day, or after sunset, his deliciously pure modulations are a never-ending delight. I should not venture, even in my wildest flights, to attempt to reproduce either in writing or in music his marvellous cadences, interspersed at intervals with derisive shrieks; others have done so, however, and I beg to submit to all lovers of this dainty bird the latest effort in this direction. A Norse writer thus describes for his compatriots the song of the blackbird:

Huitja.

huitja, huitja, tret, tret, tret tsivil,
tsivil, tsivil, ha, ha, ha!

Let us pass on without comment. The man meant well, no doubt, and possibly that is the way the notes sounded to him. If certain people are color-blind, I see no reason why others should not be tone-deaf. Or perhaps, now that horses and dogs talk and do arithmetic, that particular bird was trying to sing in the vernacular of Norway. Certainly no blackbird I ever heard made such sounds as that; and what makes me think I am right is that there did once live a writer who had an ear, Aristophanes, who in his "Birds" has reproduced sounds that come uncommonly near to the notes of the blackbird:

tiō, tiō, tiō, tiotingx: to to to to tingx:
ioū, ioū, ioū; torotix, torotix;
triotō, triotō, totohrix; iō, iō,
iō, iō, kinnaban, kinnaban, liliilix!

Aristophanes' protagonist was, it is true, the hoopoe (*eopops*), a bird that is not a songster, but simply makes a noise similar to a whoop, whence its name. The hoopoe was introduced into the play only on account of its brilliant plumage, and of the comical scenic effects that could be drawn from its abnormally prominent and erectile crest. But among the chorus figure both the blackbird (*kopsichos*) and the nightingale (*aeodon*), common birds in Greece, and with which the author must have been thoroughly familiar; so that it appears unquestionable that the above sound-mimicry was an attempt on his part to reproduce the song of these two latter birds which has much similarity. All of this question of the reduction to letters of abstract tones is very personal and based on acuteness of hearing and on musical training; but certainly, so far as I am concerned, Aristophanes' effort would pass very closely for the blackbird, that *hx* and *tingx* reproducing rather neatly the piercing final notes of so many of its periods. But at any rate, pray compare his imitation with our Norse friend's effort!

A French naturalist speaks of the blackbird "whistling an absolutely invariable cadence in a minor key, incessantly beautified by fresh variations,—this bird being an incorrigible plagiarist;" and he refers to a case where a blackbird and a nightingale had built nests in the same tree, the outcome being that the former learned to copy the latter so accurately that no one could distinguish between the two. This is another instance of the importance of the personal equation in the estimation of differences in sound:—thus, it would never have occurred to me to say that a blackbird "whistles," or that it always sings one and the same cadence in a minor key. And this reminds me of the tale of the travelers in Turkey who were asked to note down on paper as nearly as they could how the word *baksheesh* sounded to their ears, and of the curious results that ensued! When you come to think of the matter, the power to distinguish between sounds is in reality a question of training. If we were all to set to work to learn the blackbird's tongue, we should ultimately reduce it to symbols about which we should all agree; it is only because one of us occasionally takes a wild shot at the subject out of passing curiosity that the results are so divergent. Consider what happens with the telephone. If someone rings, and says in French to my French servant that M. Martin or M. Dupont wishes to see me, there is not the slightest trouble; but if an Englishman telephones that Mr. Jackson or Mr. Harrison is at the apparatus, he has often great difficulty in getting the name correctly. No doubt we personally should have equal trouble in catching even approximately a Russian or Spanish name.

The region of Paris simply swarms with blackbirds. Every old court that contains a tree or two, or merely a wall covered with deep, dark ivy, will harbor at least one pair; and when the young are hatched the parents can be seen all day long scurrying over the sod and hauling out and slaughtering the inoffensive earthworms that seem to constitute their food of predilection. In the Bois, at the time when the young are large enough to leave their nests and be taught how to make their way in the world, you will sometimes find in secluded parts flocks of twenty or thirty together,—rather a strange sight, with such very shy creatures as these. Paris is surrounded on every side with beautiful, well-watered forests, so why these timid birds, with such limitless possibilities at their choice, should elect to live in shut-in courts in town, is a conundrum,—particularly as their favorite earthworms are not so very plentiful in a paved city. This custom hardly seems to harmonize with what Chaucer says about a bird's disdain for cages and luxury:

"Yet hath this bird, by twenty thousand fold,
Lever in a forest, that is rude and cold,
Gon ete wormes and swich wreechednesse."

I have often wondered how it is that we have no nightingales in this part of the world, since they are on all sides of us, so to speak. I once spent a spring at Bellagio, on Lake Como, and the noise they made there at night was enough to preclude sleep. Andalucia, in southern Spain, is notorious for its nightingales. And all of that charming group of men that have written at such length about country life in England, Gilbert White, Charles Cornish, and Richard Jefferies, speak of the nightingales in spring in terms that fill one with consuming envy. In some districts near London they are to be found in such abundance that they have given their name to the place; thus, in a side-glen of the Surrey hills, running down to the deep stream of the Wey, south of the Thames, there is a Nightingale Valley, while north of the same river, in the Brent Valley, not far from Ealing (in reality a part of Greater London), there is a preserved wood of twenty acres that is famous for these birds. Here again we find the facts in opposition to Chaucer's lines,—think of birds that could nest on the shores of Lake Como or in Grenada among the glades of the Alhambra, coming to rear their young in the dingy suburbs of London!

It has now been so long since I really had a chance to listen to the nightingale's song that I should not attempt to say what it is like; nor does the reproduction of its notes seem to be an easy task, from all I hear. No less a person than Verdi had a try, it appears, but abandoned the attempt; yet no one would venture to question the degree of cultivation of his sense of sound. The authority on this matter is naturally a Herr Professor, Beckstein by name, though even he admits that he has succeeded only very approximately. The following is (as nearly as I can translate his remarks, some of his terms being unfamiliar to me) what he has to say on the subject: "The nightingale's song is composed of twenty-four cadences clearly distinguished by their first and last notes, and comprises about 185 trills and flourishes; it is a succession of melodies interspersed with organ-points and beautified by coloration." That is the best I can do with it,—understand if you can; but it all sounds very German.

Our ancestors did not possess the words "Spring" and "Autumn," but used in their stead "Lenten" and "Haerfest;" thus, there is a mediaeval poem which runs:

"Lenten ys come with love to toun,
With blosmen and with broides roune."

All of these delightful old Anglo-Saxon words have now been practically discarded, having gone down before the progress of the Latin element of our language. Harvest-time has now a limited meaning, as also Lent; while blossom has become flower, and as for "to roon," how many of my readers are there who have any idea what it means! Lenten is from the verb meaning to lengthen; the word therefore indicates the time of year when the days grow longer. But although words may differ, the season itself remains the same, and at each renewal thereof we only find ourselves more and more deeply conscious of its wondrous beauty, its healthy joys and endless promises. I think, however, that at no time has the awful horror of the present war affected me so strongly as at present. The idea that, at this season of the songs of birds, of the luxuriance of blossoms, and of the renewal of life, the men who ought to be on the farms hard at work at the labors of peace, tending the lambs, planting their gardens, and tilling the fields, are crouching by the million in the endless trenches that stretch from one end of Europe to the other, trying to exterminate each other by every device that the science and ingenuity of man has been able to create,—is one that is simply appalling. If in the hereafter there be a tribunal for the apportioning of reward and punishment, the people that precipitated this, the greatest calamity of all history, have indeed a fearful reckoning in prospect.

"S."

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JUNE 19, 1915.

CONTRIBUTIONS.

Dr. L. O. Tarleton, First Lieut., U.S.A., Manila, P.I.	\$ 5.00
Norwich Medical Association, Norwich, Conn.	25.00
Westmoreland County Medical Soc., Mount Pleasant, Pa.	25.00
Elmira Academy of Medicine, Elmira, N.Y.	50.00
Dr. Angus McLean, Detroit, Mich.	30.00

Receipts for the week ending June 19. \$ 135.00
Previously reported receipts 7312.00

Total receipts \$7447.00

Previously reported disbursements:

1625 standard boxes of food @ \$2.20. \$3575.00

1274 standard boxes of food @ \$2.30. 2930.20

353 standard boxes of food @ \$2.28. 804.84

Total disbursements \$7310.04

Balance \$ 136.96

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburgh, Pa.

APPOINTMENTS.

BOSTON CITY HOSPITAL. In the pathological department Dr. George S. Graham has been appointed second assistant pathologist, and Dr. Edgar M. Mcclar, research assistant in pathology.

RECENT DEATHS.

DR. J. WALTER BEAN, who died on June 20 at West Medford, Mass., was born in Sutton, N. H., on June 7, 1855. After studying medicine with Dr. M. M. Russell of Concord, N. H., he received the degree of M.D. from the University of Vermont in 1882. After practising his profession for three years at Lyme, N. H., he pursued post-graduate studies in New York and in 1890 settled at West Medford. He was a member of the American Medical Association, of the New Hampshire State Medical Society and president of the Medford Medical Society. He is survived by his widow and by one son, also a physician.

DR. JAMES EDWIN CLEAVES, who died at his home in Medford, June 20, 1915, was born July 5, 1853, in Somerville. He was a graduate of the Harvard Medical School in the class of 1879 and had been a councilor of the Massachusetts Medical Society for several years. Formerly Dr. Cleaves was a member of the Medford board of health. He is survived by his widow and by one son, also a physician.

DR. GUSTAVUS F. WALKER, who died in Boston on June 1, was born at Hodgdon, Maine, in 1843. At the outbreak of the Civil War he enlisted in the Twentieth Maine Regiment, with which he served throughout the war. Subsequently he studied medicine at the Boston University and at the Vermont Medical College, and since 1888 had practised his profession in Boston. He was a member of the Boston District Electile Medical Society. He is survived by his widow, one daughter and one son, the latter being also a physician.

DR. FANCIL DUNKIN WEISS, who died on June 24 at Gedney Farms near White Plains, N. Y., was born at Watertown, Mass., the son of a physician, in 1843. He had resided for many years in New York City and was dean of the New York College of Dentistry.

The Boston Medical and Surgical Journal

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Address.

THE USE OF MAGNETISM FOR LOCALIZING NEEDLES IN THE TISSUES; WITH THE REPORT OF CASES.*

BY GEORGE H. MONKS, M.D., BOSTON.

A SHORT time ago I published in the JOURNAL a preliminary report on the experimental use of magnetism for locating needles in the tissues.[†] Some days thereafter my attention was called for the first time to a few articles in certain ophthalmological journals, in which essentially the same method that I have employed was advocated for the purpose of determining the position of bits of steel or iron within the eye. On perusing these articles I met with references to others, and it soon became clear to me that the method which I have suggested is not new, even in general surgery, as I supposed it was when I presented my first communication on the subject.

It appears that in 1880 Thomas R. Pooley[‡] published an article on the detection of steel and iron bodies in the eye by means of a magnetic needle. Asmus[§] in 1894, elaborating the idea, devised a very delicate apparatus, which he called a "sideroscope," an instrument which a few years later was modified by Hirschberg.[¶] In the same year in which the description of the apparatus of Asmus was published, Galenhardt^{||}

* The methods herein described were demonstrated, and some of the cases were reported, at a meeting of the Boston Surgical Society, March 1, 1915. See JOURNAL, p. 639.

† The JOURNAL, Vol. clxxii, No. 8, Feb. 25, 1915, p. 285.

demonstrated a "magnetometer" devised by Gerard for the same purpose.

The use of these instruments, which has apparently always been very limited, has now, I understand, been largely done away with since the introduction of the Roentgen rays. Although the instruments themselves are very ingenious and are capable of great precision, they are also very delicate and are easily affected by outside influences, electrical, magnetic, etc. They also require an expert to run them. I am told that it is very doubtful whether they have in ophthalmological work any single advantage over the Roentgen rays, except, possibly, in the saving of time.

The first person of all, however, so far as I can discover, to use magnetism for the purpose of localizing steel or iron bodies in any part of the body, was Smee,¹ whose article appeared in 1844; and to him, therefore, apparently belongs the priority in connection with this procedure. Since his time a few other articles on the use of this method in general surgery have been published by different writers, but no great improvement on Smee's original suggestions has apparently been offered.

Smee recommended that the foreign body buried in the tissues should first be magnetized; and for this purpose he suggested "transmitting a galvanic current, at right angles, to the suspected part," or magnetizing the object by induction, using an electro-magnet, and he recommended that the magnet be held as close as possible to the supposed foreign body for about half an hour. For an indicator he used a sewing needle suspended by a silk thread. He also

used a needle, about six inches long, mounted on a steel point. He referred to a case in which he was able to detect "a piece of needle imbedded in the finger of a young woman."

Ayeling² recommended the use of the magnetized needle suspended by a silk thread, but he did not speak of the necessity of first magnetizing the buried needle. He referred to two cases where apparently this mode of detection was used with success.

J. H. Pooley³ conducted a number of experiments, and as a result made the statement that in the magnetic test properly applied "we have a certain and available means of diagnostically detecting the presence of needles buried in the flesh, even when imbedded at considerable depth." He thought the method deserved to be more thoroughly known and appreciated.

Th. Koehler⁴ related the case of a woman who consulted him on account of pain in the thenar eminence of the right thumb. The presence of a foreign body in the tissues was thought possible, although no definite history was available. An incision had already been made by another doctor, but no foreign body had been found. As the pain persisted, the median nerve was exposed through an incision near the elbow, and then stretched but the pain continued. A neurologist, whom the patient finally consulted, expressed the opinion that her symptoms were due to the presence of a foreign body, and recommended another operation. The attempt was made by means of a large electro-magnet to draw the foreign body to a place where it might be definitely localized by the sensations of the patient, or by palpation, but without success. The foreign body was, however, finally localized by a delicate galvanometer, and was at once removed through an incision. Koehler, referring to the "Vorzüglichie Diagnose" of the neurologist, says that the evidence furnished by the use of the galvanometer was so striking that, after he had witnessed the demonstration, he not only was certain as to the presence of a needle in the tissues, but was sure that he would be able to find it. Apparently neither Koehler, nor those who subsequently wrote upon this subject, were aware of the early articles of Simee, Ayeling and others.

Dumont⁵ reported the case of a washerwoman who forced a needle into the thenar eminence of the right hand, about half of it remaining in the tissues. After several unsuccessful attempts to find the needle through incisions, it was finally localized by the use of an electro-magnet and an astatic needle,* and was then removed.

Källin⁶ published the details of a number of experiments made by him on the magnetic attraction exercised by needles, knife-blades, bits of steel, etc. In the process of magnetizing these objects, magnets of various kinds were used, while a galvanometer, or astatic needles were employed as indicators.

Graser⁷ had a case in which he was successful in locating a needle by magnetic means. He thought the method a good one, but considered that its use must be limited to places where a large electro-magnet is available, since without previous magnetization the test succeeds only when the foreign bodies are of very large size.

Kummer⁸ reports the ease of a seamstress, in which the fragment of a sewing needle was removed from the right knee, after it had been magnetized by an electro-magnet, and localized by a mirror galvanometer.

Lauenstein⁹ relates a case in which the fragment of a needle lay imbedded in the palm of the hand for six weeks, and was then correctly localized by the use of a magnetic needle. The foreign body was found and removed.

Charon¹⁰ gives the ease of a boy of nine years, in whose knee-joint a needle fragment was accurately localized by means of the apparatus of Gerard (which apparatus apparently has a telephone attachment). A galvanometer was used as a control.

The above articles vary greatly in their interest and value: while in some of them it was evident that the writers understood very little about the subject of magnetism, and that they had apparently made no effort to study it; in others a number of careful and systematic experiments on the subject were recorded. Little or no weight, however, was laid upon the fact that it is the ends of the buried needle (that is, the two poles) which attract or repel, and not the body as a whole—a statement which can easily be proved by using the suspended needle as an indicator, or even a compass.

CASES.

I take the liberty of reporting here a few cases in which I have endeavored to localize needle fragments in the tissues by means of magnetism; and, after reporting these cases, I shall try to state definitely, of what practical use, if any, such a method may be at the present time, especially now that we have the x-rays. The cases herewith reported were referred to me by my colleagues at the Boston City Hospital, and I take this occasion to acknowledge their kindness. All the localizations were done by me, and also all the operations, except in case No. 5, and in one other.

CASE 1. (Referred by Dr. J. Bapst Blake.) Sarah B., 40 years old, was washing clothes on the evening of Feb. 16, when a needle entered her right hand, point first. The needle broke, and about half of it remained in the tissues. The next day she went to the City Hospital, where an x-ray photograph was taken. The plate having been examined to determine the approximate position of the needle-fragment, and also its axis, a horse-shoe magnet (kindly given to me by Dr. R. A. Coffin) was applied in such manner as to bring the long axis of the buried needle as nearly as possible into the line between the two poles of the magnet, as

* "A magnetic needle whose directive property has been neutralized." Century Dictionary.

shown in Fig. 1. The magnet was held in that position for a few moments only. This figure also illustrates the well-known fact that, when a steel or iron body is magnetized by one pole of a magnet, the end of the body which is nearest that pole acquires a polarity opposite to that of the adjacent pole of the magnet; that is, the end of a body nearest to the N pole of a magnet becomes the S pole of the body, and the end of the body nearest the S pole of the magnet becomes the N pole of the body.

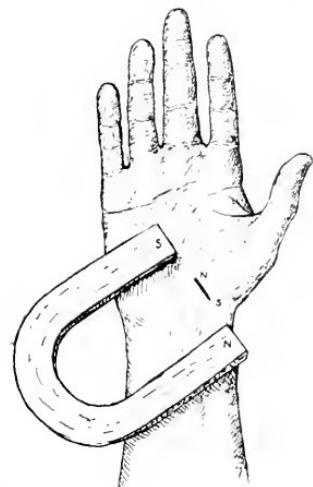


FIG. 1.

Diagram indicating the general location of the needle, and showing the method of applying the horse-shoe magnet so as to bring the long axis of the needle into the line between the two poles of the magnet.

A magnetized steel needle, about half an inch long, suspended by a fine silk thread, was then passed over this region, close to the skin, when the attraction and repulsion of the two poles of this needle showed with accuracy where the two ends of the buried needle lay. The N pole of the indicator needle was attracted to the S pole of the buried one, and the S pole of the indicator needle to the N pole of the buried one. (See Fig. 2). On the other hand, either pole of the indicator needle was repelled by the similar pole of the buried needle.

Under ether, an incision was made in the long axis of the buried needle, and, finally, the indicator being used from time to time, the fragment was found at the bottom of the wound and removed. It was found best, at the time that the indicator was being used, to retract the lips of the wound by means of sutures, as metallic forceps or retractors attracted the indicator needle and interfered with the search. The needle fragment removed measured 7/16 of an inch (11 mm.) in length.

CASE 2. (Referred by Dr. Walter C. Howe.) Frances W., 51 years old. Needle penetrated foot on Feb. 20, while patient was walking across floor "in stocking-feet." She went immediately to the hospital, where an attempt was made to remove the needle, but without success.

On Feb. 24, an x-ray plate having been furnished (Fig. 3), the buried needle was magnetized by one pole of the magnet, and that end of the needle

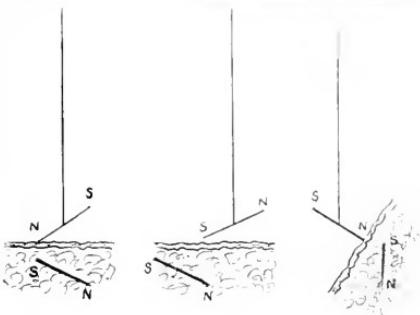


FIG. 2.

Diagrams showing fragments of needles (buried in the tissues), and indicator needles suspended by silk threads (outside the skin). The buried needles have been magnetized, so that the S pole of each happens to be nearest to the skin.

The N pole of each indicator needle is being attracted to the pole of the buried one, and the S pole of each indicator needle is being attracted to the N pole of the buried one.

In the first two diagrams the skin surface is horizontal, in the third one it is inclined at an angle.

which was nearest the skin readily located even before the stitches were removed. Ether was given, the wound was opened, and the needle was readily found and removed. It measured about 5/8 of an inch (15 mm.) in length.

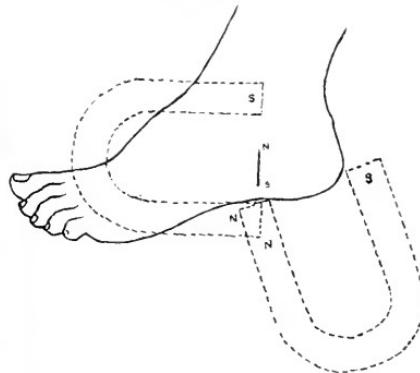


FIG. 3.

Sketch made from the x-ray plate, showing, from one point of view, the position of the needle in the foot. The dotted lines indicate two of the different positions in which the magnet was held: one pole (in this case N) of the magnet being kept as near as possible to the nearest part of the buried needle, and the other (S) being brought as near as the shape of the foot would allow to the other end of the buried needle.

CASE 3. (Referred by Dr. Howe) Majorie J., 14 years old. Fragment of needle in tip of left index finger. Although a Roentgen plate was furnished, it was hardly necessary to have one, since a dark spot in the skin indicated the exact position of the needle-fragment. The fragment was very minute, and the indicator was only feebly attracted to it. It was removed without difficulty.

CASE 4. (Referred by Dr. Horace Binney). Winifred F., 24 years old. On March 2, while the patient was using a sewing-machine (run by power) the machine needle entered the terminal phalanx of the little finger of the left hand, and then broke off. It was not certain that the needle fragment

was still in the finger, but, as a careful search failed to bring it to light, this was thought to be possible; and, therefore, the next day the patient went to the hospital where an x-ray plate was made. Before the plate was developed, however, the needle was magnetized along its supposed track in the finger, (see Fig 4), after which the indicator showed, without the slightest question, that the foreign body was in the place where it was thought to be. Under novocaine anesthesia, it was readily removed. One interesting feature about the test was that the indicator was attracted far more strongly on one side of the finger than on the other side, thus proving without doubt that the buried fragment was nearer the surface on the one side than on the other—an inference which was changed to a certainty when the x-ray plate was brought. The incision was of course made on that side, and the needle was readily found and removed. It was 5/16 of an inch (8 mm.) in length.

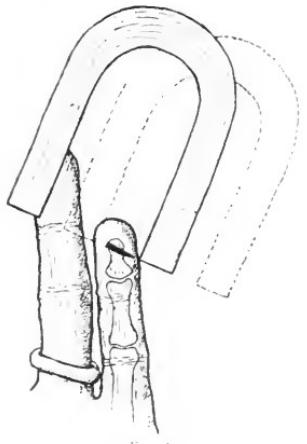


FIG. 4.

Showing diagrammatically the position and direction of the needle-fragment in the tip of the little finger of the left hand. The horse-shoe magnet is in such a position that the line between its two poles corresponds with the long axis of the needle-fragment. The dotted lines show the position of the magnet when it was moved so as to bring the other pole of the magnet near the other end of the needle.

Case 5. (Case of Dr. Binney.) Lillie M., 24 years old. While she was wiping off a table a needle ran into the fleshy part of the right hand at the base of the thumb. On the next day, March 24, she went to the hospital, where the needle was magnetized, and localized before the Roentzen plate, which had previously been made, was brought to the clinic. The needle was readily found, and removed by Dr. Binney. It was 7 8 of an inch (22 mm.) in length.

Besides these five cases, there have been a few others in which I have tried magnetic localization. In some of them the test was fairly successful, while in others it failed entirely. In two of the cases (from the Oral Surgery Clinic at the Harvard Dental School) the fine hollow needles of novocaine syringes had been broken off in the soft tissues inside the mouth; in the one case on the inside of the ascending ramus of the jaw, and in the other in the gum close to the periosteum covering the alveolar process,

In both cases the breath of the patient prevented the indicator needle from being at rest, but a small compass introduced into the mouth gave rough information as to the general position of the needles, both of which were found and removed. In the case of a boy, (referred by Dr. F. B. Lund) in which a small needle fragment, according to the x-ray plate, lay deeply imbedded beneath the ligamentum patellae, the test failed entirely, probably on account of the depth at which the needle lay. It was only moderately successful in the case of a man (referred by Dr. J. C. Hubbard) in whose hand lay a piece of steel from the head of a cold chisel. The piece was about $\frac{1}{4}$ inch long and $\frac{1}{8}$ inch wide, and lay at considerable depth from the skin surface. It is quite possible that in this case the steel fragment was not sufficiently hard to retain a full charge of magnetism. That it did receive a certain amount of magnetism, however, was proved by the fact that, after it had been removed, it attracted the indicator needle in a very noticeable degree whenever the needle was brought near to it.

MAGNETIZING THE BURIED NEEDLE.

In my experience it is absolutely necessary in some way to magnetize the buried needle, for unless this is done, a magnetic indicator is not affected in any way until the indicator is so close to the needle as almost to touch it. For magnetizing the needles in all the cases here reported I have used either electro-magnets or ordinary steel magnets. Without much question a needle fragment may be charged with magnetism more strongly by an electro-magnet than by the ordinary steel one; and also it is probable that within certain limits the more powerful the electro-magnet the more powerful the charge will be, and the greater the distance through which it can be transmitted to the needle fragment. When, therefore, an electro-magnet is available it should perhaps be used in preference to an ordinary steel magnet; but for ordinary purposes a large horse-shoe magnet, especially on account of its low cost* and the ease and simplicity of its use seems to answer most requirements. The method of using this magnet is illustrated in Fig. 1, in which the importance of holding the magnet, if possible, in such a manner that the long axis of the needle shall lie in the line between the two poles of the magnet is emphasized. Under such circumstances the buried needle becomes magnetized instantaneously, but the charge it receives is apparently somewhat increased by bringing each pole of the magnet successively as close to the adjacent pole of the needle as possible, and by repeating the action several times (See Fig. 4).

USING THE INDICATOR.

For an indicator I have generally used a very fine magnetized needle suspended by a delicate

* Such a magnet may be bought at the Holtzer-Cabot factory in Brookline for sixty cents.

silk thread, or even by a human hair. I have also used a very small compass, as well as various other contrivances made of steel, and of different shapes and sizes. Generally the indicator, having been sterilized by immersion in 70% alcohol, was moved slowly over the supposed site of the buried needle. If the indicator were a suspended needle, it was allowed to swing freely in the air. In using such a needle one should not forget that its natural tendency is to lie in a line from the N. to the S., and that, when swinging free, it is also very subject to outside influences, such as draughts, electric currents, etc. I have at times found it best to make a separate test with each pole of the indicator, and for this purpose I have first drawn the needle through the knot in the silk thread in such a manner as to enable one pole to hang lower than the other, and then, after carrying this pole slowly over the skin surface of the affected region, I have done the same thing with the other pole. The test will, I think, be found more delicate when carried out in this manner than when the indicator needle is horizontal and both poles are on the same level. Once or twice a test was made with the magnetic needle suspended within a vacuum in a test-tube. I have not used a galvanometer or even astatic needles. Such instruments may perhaps be of use in cases in which the foreign body cannot be found by simpler means.

THE OPERATION.

If the needle is superficial, and its position is pretty definite, local anesthesia will be sufficient; on the other hand, if it be deeply placed, general anesthesia will probably be more satisfactory. As a bloodless condition of the part is of prime importance a tourniquet should be used, if possible.

If the axis of the needle lies more or less parallel with the skin surface an incision which is at right angles to an axis of the needle is probably the proper one from a purely operative point of view;* and yet, as the ends of the needle will not be exposed in such a wound, an incision of this kind, if the operator wishes to employ the magnetic test from time to time during the progress of the operation, does not seem to be ideal. In case the magnetic test, combined or not with the x-ray plate, shows one or both ends of the needle to be within easy reach, it would seem best to make the incision so as to expose one of these ends or the other. This incision might still be made at right angles to the needle, and yet be near to one of its ends. A second incision might be made to join the first one, if necessary, making a V. or a T. or even a crneial, incision. Through such incisions the magnetic test could be applied from time to time.

* Graser was apparently the first to emphasize this, for he recommended making an incision "in querer Richtung gegen die angenommene Lage des Fremdkörpers."

For retraction of the edges of the wound, during the test, instruments made of steel or iron should not be used. Satisfactory retraction may be secured by means of ligatures passed through the lips of the wound, or by the use of aluminum strips, or some other simple method.

When a part of the needle has been exposed in the wound one should be very careful in all manipulations lest the foreign body be again lost to view. This is one of the situations where a steady hand and a delicate touch are especially desirable.

CONCLUSIONS.

Although the brilliant and satisfactory results obtained through the use of the Roentgen rays apparently seem to have rendered unnecessary all other methods of localization, I cannot help feeling that in *certain cases*, even in those in which a Roentgen plate has been furnished, the magnetic test, if properly conducted, may be of distinct assistance to the surgeon. This test will probably be most successful in the following cases:—

- Cases in which the needle fragment is large enough to receive and to retain a charge of magnetism sufficient to attract the indicator needle.

- Cases in which the needle fragment is near enough to the skin to be strongly magnetized, and also near enough to attract the indicator needle.

- Cases in which, during the progress of an operation, the incision opens up the tissues in such a manner that the indicator needle may be brought very close to the foreign body.

In all other cases, especially in those in which the needle fragment is very fine or very small, and also those in which it is far from the skin, the test is of doubtful value. Finally, I would say that all these remarks refer only to cases where the foreign body is a needle, or a needle fragment, and they do not refer to cases where ordinary fragments of steel or iron are imbedded in the tissues. I have not yet had sufficient experience with such cases as to enable me to generalize.

As already stated, a powerful electro-magnet is to be preferred for purposes of *magnetizing the buried needle*; but, as such an apparatus is not often available, a large steel horse-shoe magnet will probably answer all requirements.

Though a galvanometer is presumably the most sensitive *indicator* as to the position of the buried needle, nevertheless, for practical purposes, a very small compass, or a piece of fine sewing-needle suspended by a delicate silk thread will probably be found sufficiently sensitive.

Unless other considerations contraindicate, the *incision* had best be made in such manner as to open up the tissues near one, or both, ends of the buried needle. Of course no instruments

of steel or iron should be near, when the test is being applied.

I wish to thank Prof. D. T. Cumstock of the Massachusetts Institute of Technology for a number of valuable suggestions concerning the use of magnetism for the above purposes.

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Original Articles.

POLLEN THERAPY IN HAY FEVER.*

By J. L. GOODALE, M.D., BOSTON.

WITHIN a few years numerous reports have appeared in regard to the treatment of hay fever patients by the subcutaneous injection of pollen extracts. The writers, among whom may be mentioned Freeman, Noon, Cook, Clowes, Koessele, Manning, Oppenheimer and Gottlieb, have uniformly reported that a certain number of patients so treated have received more or less complete relief from the disease.

The object of the following paper is to report the results of observation based upon 123 cases of hay fever examined during the past 12 months with reference to determining if possible the value of this treatment, and also to ascertain what biological relations, if any, exist between the pollen of different plants.

In the first place, a word should be said in regard to the method of obtaining and preserving the pollen extracts. For many plants, which furnish an abundance of easily detached pollen, it is sufficient to gather the partly opened flowers, bring them into a room without currents of air, and in the course of a few days, the pollen may be shaken upon smooth paper. This applies particularly to those plants the cross fertilization of which is effected through the agency of air currents, such as many forest trees and grasses, and certain Compositae, particularly ragweed. In the entomophilous plants, where the cross fertilization is largely effected by the agency of insects, the freshly opened anthers may be clipped and gathered. The pollen is then either placed in the solution for extraction, or it may be preserved dry for an in-

definite period. I have taken pollen from specimens in my herbarium gathered 25 to 30 years ago, of grasses and of ragweed, which on the addition of water excites as marked a skin reaction as would be the case with freshly prepared extract.

The extract is obtained from the pollen by soaking in water for a few hours. I have not found it necessary to subject the material to trituration, as advised by some writers, and this is also theoretically unnecessary since the pollen grains in water promptly undergo a swelling, with solution of their albuminous contents. Several observers have complained of the difficulty of preserving the extract, and say that it is liable to deterioration on standing. After a number of tests, an alcohol dilution of 13 to 15% by volume seems to meet the requirements, and material prepared in this way a year ago has apparently lost little of its efficiency. It is interesting to observe in this connection that we have an example of a natural plant juice, namely wine, in which preservation of its qualities is thus secured. The heavier natural wines contain a considerable amount of albuminous matter, together with approximately 14% alcohol. More than this percentage checks the further development of the yeast plant, and this amount, while preventing decomposition, does not seem sufficient to cause a precipitation of the proteids of the wine.

It is desirable to keep the solution in amber bottles.

A word of caution should be said in regard to the gathering of flower heads for the preparation of pollen extract in the case of those plants which may contain a poisonous substance, as occurs in certain Compositae, especially the wormwood group. I have observed a few cases where disturbing symptoms of nausea and malaise followed the injection of such material to a greater extent than would be accounted for by the actual amount of pollen present. In the case, however, of such plants as the Rosaceae and grasses, these precautions are unnecessary and we may in the case of the latter, find it more convenient to strip off the flower heads or anthers by hand.

When the pollen has been gathered, and a suitable extract obtained, the latter constitutes then the stock solution from which varying dilutions are prepared. It is theoretically desirable to prepare the stock-solution with a definite percentage of pollen-extract, but with present laboratory methods this is difficult, and, moreover, it is not absolutely essential, since individuals differ very widely in their degrees of sensitization, and each case must be examined by different dilutions, to determine the correct strength which it is safe to use for the patient.

As has been described by other writers, and by a previous publication of mine, the tests are made by making a series of superficial scratches on the skin of the arm, and gently rubbing in a drop of the pollen extract to be tested into a scratch. After five to 15 minutes the positive re-

* Read before the American Laryngological Association, June 2, 1915, at Niagara Falls, Canada.

actions are indicated by varying degrees of local disturbance. These disturbances of the skin may be ranged in order of intensity as follows: In some cases the first perceptible alteration consists in a sharply circumscribed white area, not elevated, bordering the scratch for a distance of $\frac{1}{16}$ to $\frac{1}{8}$ of an inch. We may find in other individuals the first manifestation to consist of a slightly reddened raised area. In more pronounced disturbances the area of swelling is more extensive, and is more or less white in color, being surrounded by an area of reddening of varying size. When this degree of disturbance appears, it is usually accompanied by itching. It may, in marked cases, attain a considerable size, the edematous area reaching one inch or more in diameter and surrounded by half an inch or more of hyperemia.

The intensity of the skin reaction does not always seem to be proportionate to the clinical symptoms of hay fever. I have seen numerous severe cases where the skin reaction was much less than in other individuals who apparently suffered from a milder form of the disease. In the case of children the skin disturbances are relatively less pronounced than in the case of adults, and I have observed several under ten years of age, with apparently well-defined hay fever, who showed no reaction to the prevailing pollens borne in the air at the special season.

Examination of my cases by this method shows that the hay fever season in eastern North America may be divided into four periods as follows: The first period coincides with the flowering of the earliest blooming plants, the second with the flowering of the grasses, the third with the midseason flowers of July, and the fourth with the opening of the autumn blooming Compositae.

Of the first period 13 patients were observed who gave positive reactions to one or more of the following plants:

- Coltsfoot (*Tussilago*)
- Dandelion (*Taraxacum*)
- White maple (*Acer dasycarpum*)
- Willow (*Salix nigra*)
- Alder (*Alnus incana*)
- Birch, white, yellow and black (*Betula papyrifera*, *lutea*, and *lenta*)
- Hawthorne (*Crataegus* sp.)
- Apple (*Pyrus malus* and *floribunda*)
- Lilac (*Syringa* var.)
- Oak (*Quercus rubra*)
- Tulip
- Lily of the Valley.

The symptoms which these early bloomers excite are relatively mild and depend chiefly upon the abundance of the plants in the vicinity of the patients. For many individuals the annoyance is so slight as to be perhaps not worth treating. In others a residence surrounded by maples or oaks, or with an orchard close at hand, may cause considerable discomfort. The most severe cases of this season which I have seen were

from maple and oak. If there is only one sensitization, the period of disturbance is brief and disappears with the drying or shedding of the flowers in question.

The second period represented by 36 cases, is ushered in with the flowering of the grasses. Owing to their abundance and the range of the blooming period of the different species, it is relatively severe and prolonged. Coincident with their flowering we may find an associated disturbance from many garden flowers, but for the majority of individuals, these latter are of minor importance. It is probable that if these June cases can be rendered immune to grasses, the other causes will be borne without much trouble.

The third period, represented by 10 cases, has been shown by my observations to be due in great measure to the mid-season Compositae, such as field daisy, hawkweed, yarrow, etc. With these are many species reported by patients which are still to be studied, such as chestnut, phlox, mountain laurel and numerous other plants of restricted distribution.

The fourth period with 77 cases begins with the general flowering of the ragweed, goldenrod, asters and the late Compositae and lasts until frost. My examination of the fields and roadsides at this season shows that the common plants other than the Compositae are relatively innocuous, and may be disregarded. Such are in the vicinity of Boston, the wild carrot (*Daucus carota*), pigweed (*chenopodium*), hardhack (*Spirea tomentosa*) and other representatives of these families.

From the foregoing observations it is evident that in this vicinity the chief causes of hay fever are the grasses and late Compositae. The early and midseason forms are briefer and less severe.

The possibility has been suggested that sensitization to proteids may arise through some parenteral entrance of the albumen in question into the body, and that hay fever, for instance, may originate from the contact of a given pollen with a scratch or abrasion of the skin. If this should be the case, it would certainly lay the method of testing by skin reaction open to serious objection, as we should thereby run the risk of exposing the individual to numerous sensitizations. I have gone over this point carefully with many patients testing them repeatedly with pollens to which they were originally negative, and have not, in any case, discovered the subsequent development of a sensitization.

METHOD OF TREATMENT.

The pollen extract is injected subcutaneously, and not into the muscles, as pain or stiffness may follow in the latter case.

The dosage is determined in the following way: After the special exciting pollen has been ascertained by the skin test, a second series of scratches is made at a distance from the first, and different dilutions of the pollen extract in

question are applied. It is important not to have this test applied in the vicinity of the skin which has been reddened by the first tests, as an increased excitability of this region is present, and even a simple scratch will cause localized swelling. The dilutions may be most conveniently made by adding a certain amount of the stock solution to alcohol of the same strength, and a 25%, 10%, 1% and even weaker dilution of the original extract are applied to the second series of scratches. The initial dose is determined by the dilution which fails to excite a definite skin reaction, and for the sake of causing as little smarting from the alcohol as possible, the quantity of material injected should not exceed five or ten drops. I should also recommend postponing the injection of even a small amount until after the reaction from the first skin tests have subsided, since a considerable amount of absorption from these probably takes place, and the introduction of an additional amount has seemed to me in a few cases to cause systemic disturbance. The injections may be made at intervals of two days to a week, increasing by a few drops at first, and later by the adoption of stronger percentages of the stock solution. To avoid the risk of anaphylactic disturbance, I have advanced the strength at first slowly. After five or more injections have been given, the strength may be increased with greater rapidity. The disturbances occasioned by the injection of the pollen extract below the skin consist, when a sufficient strength has been attained, of a more or less well-defined lump, varying from the size of a bean to that of a pigeon's egg, accompanied by a sensation of moderate heat and itching. It is interesting to note that none of the patients have complained of these manifestations as representing more than a trivial degree of discomfort, and in no case has the disturbance been sufficient to cause the patient to interrupt treatment.

Two instances of distinct but harmless anaphylactic shock were observed, one occurring in August in a man who came in somewhat exhausted from the heat, who showed extremely marked skin reactions, and who received on the same occasion a small dose of ragweed pollen extract. About half an hour after the administration of the pollen extract, he was taken with faintness, nausea and vomiting, and had to be assisted home. The other case was that of a boy who received a dose of grass and dandelion pollen insufficient to cause local skin reaction, but who, a few hours later, was taken with moderate prostration, nausea and vomiting. It has seemed to me consequently a wise precaution to make the initial dose approximately one-tenth of what the patient can theoretically receive with safety. After a number of injections have been given, it is practicable and safe to inject a strength which may cause distinct skin reaction, without exciting general disturbance.

Beyond the immediate anaphylactic shocks

above noted, I have seen in a few cases where ragweed pollen has been injected occasionally a more or less marked persistent general depression. Since using the pure pollen extract, such a condition has not occurred in my own practice, but it has been reported to me by patients treated by other physicians. It seems to me here to be a question whether there has been an injection of toxic material other than the pollen, or whether the dosage has been excessive.

RESULTS OF TREATMENT.

We have two methods of determining the effects that have been accomplished by the injection of pollen extracts, first, the behavior of the skin reactions; second, the patient's observations regarding his condition. The first phenomenon being objective in character should afford a more reliable guide as to what has been accomplished.

INFLUENCE OF TREATMENT UPON THE SKIN REACTIONS.

In those cases which it was possible to observe for a period of two weeks to several months, the skin reactions were carefully noted at regular intervals. Of these, 62 showed a distinct diminution in the size and intensity of the disturbances in the skin, two showed no appreciable change.

The time required for the diminution of the skin reaction varies within wide limits, dependent both upon the plant tested, and upon the individual himself. In the case of alder, willow and apple, I have sometimes obtained a marked reaction from the first application, but on repeating the application two days later, a diminution or total disappearance was noted. This sudden disappearance following the first scratch was noted also in a case of horse fever, which showed on one afternoon a very extensive swelling from the application of antitoxine to a scratch, but who on the following morning, tested with the same antitoxine, showed no reaction, and has shown none since. In the case of grasses, and even more in the case of ragweed, a slower disappearance of the reaction was noted. With ragweed and Cosmos particularly I have observed in some cases a persistence of the skin reaction, even after weekly injections carried on for a period of four to six months. In these more obstinate cases an increased tolerance, however, was noted in spite of the persistent swelling. This tolerance was shown by the disappearance of itching which the first injection had caused, and by the smaller amount of hyperemia surrounding the oedema.

Twenty-one cases of those whose reactions had diminished in the course of treatment were examined again after the lapse of two to six months. Of these 19 showed no return of the skin sensitiveness, and some of them showed a still further diminution. Three cases after the lapse of three months showed a distinct return toward their original degree of sensitization.

INFLUENCE OF TREATMENT UPON HAY FEVER SYMPTOMS.

In describing the results which have followed the injection of pollen extracts, it has seemed to me desirable to separate those cases which have received treatment during the hay fever season from those which have been treated during the winter or out of season. I have done this for the reason that it is difficult during the course of an attack to draw accurate deductions from the statements of the patients themselves. We have in the first place to remember that seasons vary in the severity of hay fever symptoms, dependent upon the amount of rain, heat and cold. Furthermore, the individual's predisposition seems to vary, perhaps as the result of his physical state and habits at the season. Finally the element of suggestion may conceivably play a part. While I shall therefore report the summer cases with reference to the degree of relief obtained, I do not regard these figures as at all conclusive. On the other hand, observations carried out during the winter with references to changes in the intensity of the skin reaction may be considered a fairly reliable guide, if it be admitted that the strength of the solutions themselves has not undergone deterioration. This latter point is difficult to determine with absolute certainty. Nevertheless, my alcoholic solutions seem now, after a lapse of months, to effect in new cases nearly, if not quite, the same degree of skin reaction, which they occasioned in a fresh state.

At the date of writing, 123 cases have been observed, of which 74 have had more or less treatment, 49 have been seen but once, or are now beginning treatment. Of the cases which may have been considered to have had a sufficient amount of treatment to enable us to draw more or less definite conclusions, 32 were treated after the onset of the hay fever symptoms, and 47 were treated during the winter or early spring. Of those cases which were treated at the beginning of the hay fever season, 26 expressed themselves as having been more or less relieved, eight could not see material improvement. In estimating the results actually achieved by treatment during the season I believe that an accurate judgment would place the extent of the relief in a number of instances distinctly below that which the patients expressed. It is possible that the element of suggestion plays here a considerable part.

Furthermore, a certain number of these who believed themselves improved showed but slight diminution in the extent of the skin reaction. It has seemed to me that such cases probably represent too high a degree of sensitization to obtain material relief during the hay fever season, and that a longer period of treatment is required. On the other hand, several of these individuals who reported several months later, showed a marked diminution in their skin reaction, and it was possible then to undertake their treat-

ment, with the result of bringing about still further a diminution in the intensity of the skin disturbances. About one-fourth, however, of those treated during the season experienced after a certain number of injections, ranging from four to 12 in number, such striking diminution in their subjective sensations and in the skin reactions that it seemed difficult to ascribe the gain to anything else than the treatment, the improvement noted having occurred from one to three weeks before the disappearance of their type of hay fever in this vicinity.

THE BIOLOGICAL RELATION BETWEEN DIFFERENT PLANT PROTEIDS OR POLLENS.

It is evident that in this work a knowledge of the biological relationships of the exciting plants would be of the greatest aid. If, for instance, we can say that the protein of two exciting plants is identical we shall need to inject the pollen of only one.

While we do not know clinically the relation of the different plant pollens, yet from a botanical standpoint, they have been studied by serological methods by a number of observers.

The methods employed were the precipitation reaction and the agglutination method. Extracts of the plant albumen were made, removing first, where present, fats, oils, acids, alkaloids, starches, glycogens and sugar. Those extracts were then injected into rabbits, preferably into the abdominal skin. As a rule the interval between injections was from three to four days.¹

With reference to the time required for immunization of the rabbits, no exact figures can be given. Sometimes a potent immune serum can be produced after three or four injections, but cases also occur where even after ten injections very little immunity had appeared—at times entirely failed to occur. Apparently the individuality of the animal is a factor. Uhlenhutt mentions that of ten rabbits injected with the same albumen, only one showed a potent immune serum. The test is done by removing a small amount of blood from the marginal vein of the rabbit's ear, adding a portion of the extract which was used for injection and centrifuging. If the serum is of high potency, a precipitate is shown. The animal is then separated from the others, not fed for 24 hours and then killed. The blood is received in sterile glasses from a carotid incision. The serum must be perfectly clear, and show no opalescence. Finally the serum must have no free antigen, that is, the animal must not be killed too early after the last injection. The serum, if absolutely sterile, is easily preserved in dark glasses and closed with sterile cotton.

Precipitation Method: Dilutions of the plant extract are made, beginning with 1 to 200 and ending with 1 to 50,000. To each of these dilutions

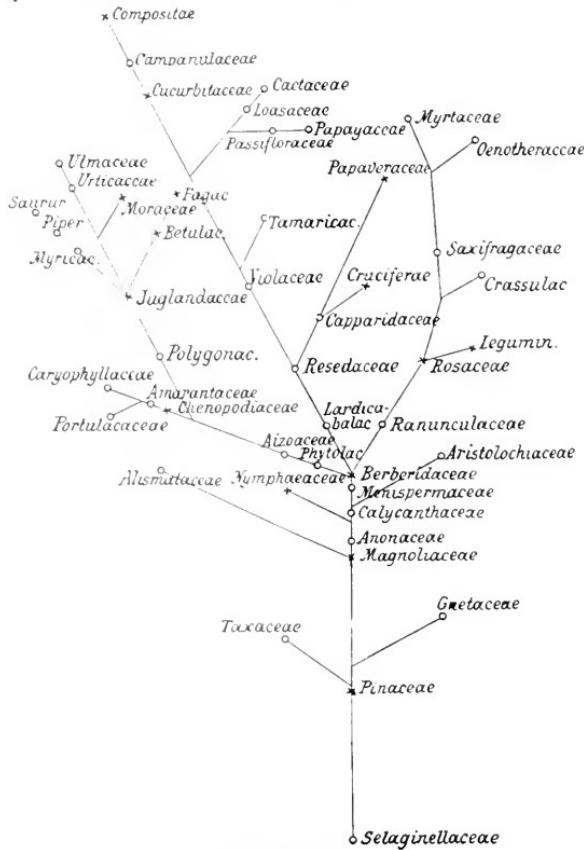
¹ Physiologische-systematische Untersuchungen über die Verwandtschaften der Angio-spermener. Mez und Göhlke, Cohn's Beiträge zur Biologie der Pflanzen, 1912.

a cubic centimeter of serum is given. After keeping in the thermostat for an hour at 37° centigrade in the more dilute preparations there is a precipitate which demonstrates the value of the serum. The procedure in the case of material related to the original one is analogous. A precipitate shows a relationship, the absence of precipitate indicates that relations of identity with the original albumen are not present.

Agglutination Method: Here one places in different glasses the same dilution of the extract according to the content of albumen, for instance, 1 to 200, and to these glasses different degrees of immune serum are added, 8-100 of a centimeter, 2-100 of a centimeter, 1-100 of a centimeter and 5-1000. These mixtures are then sensitized for two hours in the thermostat, and after the lapse of this time, 4-10 of a c.c. of fresh, active ox serum is added, whereupon in the case of related albumen coagulation occurs. This method has shown itself particularly adapted, provided we have a specially potent immune serum. In any serum, the two methods should be employed before important results are accepted.

It is desirable in these tests to bring the solution to the same content of albumen.

A large number of families have been already studied with regard to their position in the system. It has been shown that the development of the angiospermas extends from the Selaginellaceae over the pines towards the magnolias, that the yews divide laterally from the pines, while the Gnetaceae form another lateral branch of the conifers, and then the trunk runs from the barberries toward the roses and ends with the myrtles. The magnolias and barberries belong to the common stem of the roses and crucifers. The trunk must take a branch below the Ranunculaceae of which the ends are the crucifers and the roses. In phylogenetic respect the barberries are older than the buttercups. Likewise the pea family is closely related to the roses. The trunk then proceeds from the roses to the Crassulaceae and Saxifrage family and ends with the evening primrose and myrtles. The mignonette and Capparidaceae lie between the barberries and mustard family. Since the albumen of the mignonette and Capparidaceae reacts like the albumen of the poppies, it is pos-



(After Metz and Goebel.)

sible that the branch of the stem between the magnolias and Capparidaceae takes place above the mignonettes. Poppies do not act reciprocally with the mustard. The mignonettes, however, stand close to the violets. The Teasle family, Dipsaceae, which apparently resembles the Compositae, does not react with it, and we have here to do with an interesting case of convergence.

The accompanying diagram shows the mutual relationships of the families which have been studied by their serum reactions. Unfortunately the position of the grasses is not given in this diagram, as they belong to a separate trunk, namely the monocotyledons, but this fact renders it sufficiently evident that their albumen is wholly distinct from that of the dicotyledons. It has, however, been established that they are closely related in their reactions to the Liliaceae.

From the foregoing considerations it is evident that the families which chiefly concern us in this present connection, namely the Gramineae, the Compositae, the Rosaceae and certain families of trees, have no serobiological affinity with each other. Consequently an individual sensitized to one family alone would not react to the pollen of a distant group. Where two families are closely related as in the Rosaceae and Leguminosae, a positive reaction might be expected to both. The clinical evidence in this regard extends as yet only to the Gramineae and the Compositae. Clowes showed in 1913 that in individuals sensitized to both grasses and ragweed, immunization against the former conferred no immunity against the latter. Much consequently remains to be studied in this respect.

In the case of genera within a given family, a relationship of proteids has been shown to exist as already stated. We should therefore expect an individual suffering from ragweed sensitization to react positively also to goldenrod and to the other members of the Compositae. A case which reacts positively to beach grass would also react to June grass, red top, etc. A case reacting to roses would react to apples, cherries, Spirea, etc. We have, up to the present time, clinical confirmation of this view only in the case of grasses. Noon and Freeman showed that injection with one species of grass would also protect against other grasses studied. While they found the pollens identical, yet some grasses seemed to yield a more active extract than others, and in their later work used timothy grass by preference. My own study of the skin reactions in the case of grasses confirms this view, and, as I have previously reported, patients sensitized to one species react positively to others, although one may bloom in June and another *e. g.*, beach grass, in August.

Sensitization to the Compositae represents for us in America the most important form of hay fever. This is sufficiently shown by the generally accepted opinion of the majority of sufferers, and is confirmed by my own statistics.

The question, however, has remained as yet unanswered whether among the Compositae themselves subdivisions exist of a serobiological nature. While we may admit a sufficiently definite affinity to cause positive precipitation or agglutination reactions among all its members, yet it is conceivable that the proteid of the Compositae may be still further differentiated in a manner corresponding to the different genera. Following the same hypothesis we may imagine an individual sensitized primarily to the golden rod proteid, who may show only in a relatively minor fashion sensitization to ragweed, with which he has perhaps never previously come in contact. He may consequently show marked reaction to the former and but slight reaction to the latter, yet in virtue of the underlying biological affinity of the two proteids immunization to the one may confer resistance also to the other.

During the year I have studied ten species of Compositae representing as many genera, in an effort to obtain light upon this subject. Two methods have been used, first the classification of patients with reference to their reactions or preponderance of intensity of their reactions to the pollen of these Compositae, second observation whether injection of one species of pollen would influence the skin reactions to other pollens.

1. Classification of Reactions.

A summary of the relative frequency of the various sensitizations is as follows:

Ragweed,	82 cases positive,	24 negative.
Golden Rod,	48 cases positive,	50 negative.
Cosmos,	28 cases positive,	25 negative.
Field Daisy,	28 cases positive,	37 negative.
Hawkweed,	20 cases positive,	39 negative.
Yarrow,	21 cases positive,	28 negative.
English Daisy,	16 cases positive,	19 negative.
Tansy,	11 cases positive,	20 negative.
Coltsfoot,	5 cases positive,	2 negative.
Dandelion,	6 cases positive,	1 negative.

The disparity between these figures immediately suggests the question whether the different test solutions contained proteids of different strength so that individuals with but slight sensitization did not react to certain weaker solutions, when they might have reacted to stronger ones. That this is not the case seems to be shown by the following table of 20 illustrative cases.

From this table it is evident that all manner of variations exist in the primary or preponderating sensitizations of individuals. I have been particularly struck by the difference in the grouping of reactions exhibited by patients coming to me from different localities. As yet sufficient data are not at hand to enable me to generalize in this respect, but experience so far has led me to expect a different display of reactions in a patient of my vicinity from that shown in a patient from western New York or from the middle West.

CASES	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ragweed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Golden Rod	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cosmos	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Field Daisy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Hawkweed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Yarrow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
English Daisy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Tansy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Collfoot	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Pandellion	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

TABLE I
The intensity of the skin reactions is shown by the numbers:
0 = Negative; 1 = Slight; 2 = Moderate; 3 = Considerable; 4 = Marked.

ploying a mixture of these pollens to which the individual shows preëminent sensitization.

The question may possibly be raised whether the parenteral administration of plant proteids may cause harmful alterations in the organs of the body. Longcope has shown that nephritis may be set up in animals by the subcutaneous injection of egg white. No examinations have been undertaken, so far as I know, on hay fever patients, as to whether the injection of pollen extract has been followed by the occurrence of albumen in the urine. I have made no examination of my hay fever patients in this regard. A case of horse asthma which I have reported elsewhere, received for a period of several months weekly subcutaneous injections of horse serum, in doses which finally reached the amount of five drops at each injection. The urine in this case was examined before and after treatment with negative results.

CONCLUSIONS.

Serobiological methods have shown the phylogenetic relationship of the different plant orders and families. The application of these discoveries to the treatment of hay fever by injection of plant proteids promises to assist in the selection of the specific material required for a given case.

Definite reactions are elicited in hay fever by the pollen of the exciting plants when brought into contact with an abrasion of the skin. The intensity of these skin manifestations may be sensibly diminished by the repeated parenteral administration of the proteids in question. Coincident with the diminution in the skin reactions, there seems to occur an increased tolerance of the exposed mucous membranes to the pollens of the plants employed. Pollen therapy in hay fever may be regarded at the present time as a promising method of treatment, but its value and the permanence of its results remain still to be definitely established.

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2. Influence of Treatment upon Reactions of Related Pollens.

The second method of determining the relations existing between the proteids in the related genera of the Compositae, has been by the following method. A patient who shows sensitization to, for instance, ragweed and goldenrod, is injected in the usual manner with ragweed pollen and observations are made at intervals with reference to the golden rod reaction. In some of these cases so studied it has been evident that with the diminution in the intensity of the ragweed reaction, there is a diminution likewise in the golden rod reaction, which, however, follows at some distance behind it, until the ragweed reaction has nearly or quite disappeared, when there is a sudden drop in the golden rod reaction. My observations in regard to this point are as yet incomplete and demand further study before they can be regarded as conclusive. There seems, however, here a promising field for study, and the method is suggested for the consideration of investigators who are entering upon this work.

If these observations are confirmed, they will serve to indicate that there are slight differences between related genera and yet a fundamental relationship.

From the theoretic point of view it would follow that while we may be able to accomplish immunization to all members of a given family by the injection of pollen from one, yet more rapid results may possibly be attained by em-

LEPROSY AND ITS RELATION TO MASSACHUSETTS.*

BY JAMES A. HONEY, M.D., BOSTON.

LEPROSY is not of such importance as tuberculosis to Massachusetts, but, nevertheless, is a problem which confronts us and which needs consideration and action. It is a disease of which

* Read at a meeting of the Boston Medical Library in conjunction with the medical section of the Suffolk District Medical Society, on March 31, 1915.

the great majority have a considerable dread,—a dread not based on experience or knowledge. The very fact that Massachusetts has been considered foremost in many public health problems would seem to indicate a thoughtful government and an intelligent population. In the matter of leprosy, however, we have lagged behind and the claim that we isolate our cases cannot excuse us from our attitude toward lepers or our neglect of them as patients. It is my endeavor, therefore, to interest you briefly in the problem as it relates to Massachusetts.

Leprosy is first and foremost a communicable disease and in isolating cases occurring in this state we are doing what is right and proper. New York's attitude in allowing them at large is not justified. Where we have been in error is, in not regarding leprosy as sufficiently interesting and important to warrant the better care and the proper study of our charges. In making ourselves more familiar with leprosy we shall be able to diagnose the cases earlier and when Massachusetts provides us with better facilities for treating and caring for these patients, we shall be able to attempt to prolong life either by making the course of the disease less destructive and serious or by curing the disease.

A year ago a case of leprosy with marked symptoms and lesions of the disease was reported and sent to Penikese. This patient had been treated by private physicians and been through the more important hospitals for a period of three years and was finally diagnosed at the Massachusetts General Hospital. He had been treated for diseases varying from catarrh to syphilis. He had what may be termed catarrh, but no bacteriological examination had been made of the secretion nor of the lesions which may be confused with syphilis. I am not criticizing the inability of the average physician to diagnose leprosy, but I do wish to indicate the possibility of patients who suffer from leprosy going the rounds of the hospitals and only being diagnosed when in a more or less advanced stage; or, if they realize their trouble, of returning to their own country or to the next state where they are free to spread the disease.

The attempt to teach physicians what the earliest lesions and symptoms are, is not my province tonight. But if it were, I would advise any who are so inclined to visit Penikese where we can give so-called dispensary instruction. Barely half a dozen visitors see Penikese during the course of a year, and half of these are from other states.

Just what are the earliest symptoms and lesions of leprosy, authorities are not agreed upon nor are the descriptions of the stages and forms of the disease uniformly and clearly defined. And much less do we know what the channels of infection are. The clinical phases of the disease have not been studied as carefully as the laboratory and experimental side of it. We can, however, distinguish, with little difficulty, cer-

tain manifestations which are typical of leprosy. Fever with or without a macular eruption, epistaxis, rhinitis or coryza, catarrh or other nasal symptoms, enlarged glands, areas of anesthesia, itching usually of the extremities, often variably described as biting, twitching or burning, ill defined pains, etc., macular areas, small nodules on the face are all described as early symptoms and lesions. A careful bacteriological examination of nasal secretions, which can be induced by pot. iodide, is advocated by a number of investigators. This is claimed also to cause the appearance of a typical febrile eruption and nodules in the skin which are not apparent on cursory examination. X-ray of the extremities is also claimed as a means of diagnosis of early cases; the lime salt absorption and resulting rarefaction of the terminal phalanges is the picture shown. The Wassermann reaction is positive in the majority of cases. Gland puncture and bacteriological examination of the smears is perhaps as definite a means of diagnosis as is advocated. And Marchoux, Couvy, Kitasato, Leboeuf and Jovelly, and others claim that by this method they have demonstrated the bacilli in persons who have been in close and intimate contact with patients and who had shown no signs of the disease.

It is impossible to expect the very early diagnosis of cases of leprosy here in Massachusetts. That can only be achieved in a circumscribed area like Hawaii, an endemic centre, where the Government inspectors are trained observers and where all suspects are detained pending further symptoms and examination. What we term early cases here, are cases where the patient has small but visible lesions and where the bacilli are readily procured from the secretion of the nose and nodules; these cases are generally in a sufficiently advanced stage to be a source of danger to the public. The results cannot be reckoned until such cases increase either among our immigrants or among the people with whom such patients have resided. If this is a logical conclusion, then in time there is no doubt that endemic centers will form, due to the increased number of infecting but non-diagnosed cases. This is brought out all the more when we consider that practically all the cases sent to Penikese have been discovered mostly by chance at the hospitals and then only when their symptoms and lesions are pronounced and of several years' duration. The following statement from Brinckerhoff and Moore's paper on the examination of nasal secretions among non-lepers at Hawaii is of interest. "One conclusion can be drawn from our results," they say, "which is of some public health importance. It is evident that no considerable number of individuals in institutions in Hawaii have, as the sole evidence of the disease, lesions in the nose which are discharging lepra bacilli. On the other hand we are inclined to lay great emphasis upon the finding, among the patients of the Free Dispensary, of a case which had a consider-

able number of lepra bacilli in the nasal secretion. We regard this case as of particular importance, because she had come to the dispensary a number of times and had, therefore, been under the passing notice of a physician who was familiar with leprosy and always on the lookout for cases of this disease. We regard such a case as a most dangerous one from a public health standpoint, and feel that the labor of examining smears from fifty odd nasal secretions was well repaid by the discovery of this case."

It is asked whether cyclic epidemics have occurred in Asia, Africa, Europe and South America; whether these epidemics have occurred in virgin fields and also whether the present endemic centers, more particularly those of Asia and Africa, are centers where the disease is less virulent and whether a certain amount of immunity has been established. The important point in all this is the establishing of new endemic centers—the possible spread from these endemic centers to other states and the possible increase in virulence of the disease in fields where the environment is suitable for the rapid spread of the disease. In proof of the possibility let me state a few facts based on what has occurred elsewhere. New endemic centers have been established in South America, South Africa, Nigeria and New Caledonia. In 1865 in New Caledonia the disease was introduced and in 1888 there were 4000 cases. In the West Indies the disease has doubled in the last twenty years. Marchoux, reporting on the increase of leprosy in France—and from his report there are approximately 300 lepers in Paris alone—is of the opinion that there is no great reason why the disease should not again become the scourge it was six or seven hundred years ago. In South Africa the disease is becoming a serious menace. In less than twenty years 223 fresh cases of leprosy among Europeans have been reported, and the government, realizing that every year the danger is increasing ten fold, is attempting the complete segregation of all cases, even those occurring among the native tribes. An observer in South America states that the disease there is more virulent than in other countries, that the period of incubation is shorter and that the disease is spreading rapidly. Although the Mexican government in 1910 sent circulars out to determine what means should be adopted to combat the scourge, nothing apparently has been done and Mexico has a very large number of cases. In parts of India and Europe this is also true. Hawaii is frequently quoted to bear out this statement. Leprosy was probably unknown there previous to 1848. In 40 years close to 5,000 cases were reported; the disease has reached its maximum incidence and hopes are entertained that leprosy will eventually disappear. In New Brunswick from 1815 to 1891 about 250 cases were reported and at present there are approximately 15 cases. The disease frequently decreases in one place and increases in another; there are apparent cyclic periods where the dis-

ease reaches its maximum incidence and then diminishes.

What are the facts regarding leprosy in the United States? Our imperfect system of registration and statistics prevents us from graphically or truthfully presenting tables showing figures that are of much importance. Leprosy is specifically reportable in 18 states. It is endemic in Louisiana and probably in Florida and California. A case occurring in Massachusetts in an American was undoubtedly contracted in Louisiana but under what conditions we do not know. In 1911 Rhode Island reported a case of leprosy in a school boy 15 years old. This case was diagnosed in Massachusetts. Another case which Montgomery reports was a man born in Massachusetts who had never left the country and who probably contracted the disease in the Chinese camp in Nevada. The South reported the first case, as far as accurate data are obtainable, in 1775. The disease must, however, have been known there and elsewhere in the United States previous to that. Massachusetts reported its first case one hundred years later. The United States Public Health Service reported 278 cases of leprosy in 1911 and of these only 72 were isolated and cared for by local authorities. Of this number 145 were born in the United States, 120 in foreign countries, and 13 were unknown. It was thought that 186 had contracted the disease here. But this by no means indicates the number of cases in this country. To show the fallacy of such reports, the next year, 1912, gave 146 as the number of lepers in the United States and showed leprosy to be in 17 states. Dyer in 1897 reported at the lepro conference that since 1800, 277 cases had occurred in Louisiana, and that in 1897, 113 cases were still on record. The following figures I have been able to procure regarding the number of lepers in the United States from personal communication with state authorities: In Louisiana there are 102 cases segregated, and on account of the lack of co-operation or lack of interest of physicians, full returns are not given. In the yearly report for 1914, received from their leper institution, this paragraph appears: "During those 20 years at no time has more than a comparatively small proportion of the lepers in Louisiana been confined in the institution." Of the 87 cases reported to be in the home the majority are males, but what is significant is that of this number 72 are white, and only 15 are colored. In California there are at present 33 cases cared for. Chinese and Mexicans are in the great majority, there being 12 Chinese and 10 Mexicans. Minnesota reports 11 cases, and of these several are Americans born in that state,—leprosy among the Norwegians who originally settled there having practically disappeared. New York reported five new cases during the single year 1914, three of them in public hospitals, a child who was cared for at its home and one an alien who was deported. The Department of Health has made no provision for the supervision, quar-

antine or control of leprosy. I personally know of one case in Pittsburgh, Penn., one in Rhode Island and of course the fourteen here. This together totals nine cases more than was reported by the Government and includes complete figures from only four states and incomplete figures from two others.

In the Panama Canal Zone the authorities have had more than 100 cases since 1906, and approximately half that number are being cared for at present.

In Massachusetts we have had approximately 50 cases, and we receive an average of two to three cases a year. The great majority are of foreign birth, and thus far Chinese, Portuguese and Russian subjects have predominated. All told, ten nationalities have been represented. A great many of the cases have been deported. Several of the Chinese have been born in this country and three, at least, of the total number of cases were Americans. An English patient from Trinidad came to this country in the hope of a cure, and was finally sent to Penikese. Others have developed the disease from 10 to 14 years after their arrival. In 1882 White reported the presence of two lepers who had escaped from Tracadia, one of whom he had under treatment. In regard to the Chinese cases the question naturally arises whether the disease was contracted in the Chinese quarters of San Francisco or other cities on the Pacific coast, or whether on their visits to their own country. Montgomery in 1894, reporting on leprosy in San Francisco, thought it a possibility that several of the cases among the Chinese were contracted in San Francisco; he gives, among other cases, two that were here 20 and 16 years respectively before showing any signs of the disease. It is seldom, indeed, possible to obtain any information from patients a great many years after they have been here, as to when or under what conditions they have been in contact with cases of leprosy. We simply have to assume that a given case, coming twenty or more years ago to this country from a country where the disease is more prevalent, contracted the disease there and not here in the United States. Cases are on record where the disease has developed forty years after a residence in a country where the disease was prevalent. Bibb gives a case of a man 70 years of age who lived for 60 years among lepers, on the greatest social and most intimate terms, and then contracted the disease. Abraham quotes the case of a sailor 67 years old who had been retired in England forty years and had shown symptoms for the last six years only. Hallopeau relates the case of a man in whom the disease appeared 32 years after he had stayed in a leprous country.

In 1905 Massachusetts began to segregate all cases of leprosy, considering it a communicable disease. Penikese Island was the spot selected for the isolation of our cases—an unfortunate selection on account of its situation, exposure

and barrenness. So far, some thirty cases have been cared for. In New York, as in many other states, the lepers are not segregated, and in New York leprosy is not considered communicable. This surprising point of view is incomprehensible. For this reason, if for no other, the Federal government should establish national leprosaria and provide for the proper care and treatment of all cases of leprosy. Massachusetts bases its conviction that leprosy should be segregated on the opinion of the best minds of Europe, America, Asia and Africa. At the last Leprosy Conference, held in Bergen in 1910, the following resolutions were adopted:

1. The Second International Scientific Conference on Leprosy confirms in every respect the resolutions adopted by the First International Conference of Berlin in 1897. Leprosy is a disease which is contagious from person to person, whatever may be the method by which this contagion is effected. Every country, in whatever latitude it is situated, is within the range of possible infection by leprosy, and may, therefore, usefully undertake to protect itself.

2. In view of the success obtained in Germany, Iceland, Norway and Sweden, it is desirable that other countries should isolate lepers.

3. It is desirable that the children of lepers should be separated from their parents as soon as possible, and that they should remain under observation.

4. An examination should be made from time to time of those having lived with lepers, by a doctor having special knowledge. It is desirable that lepers should not engage in certain trades or occupations. All leper vagabonds and beggars should be strictly isolated.

Among general conclusions reached at this conference the following is instructive: "Every leper is a danger to his surroundings, the danger varying with the nature and extent of his relation therewith and also with the sanitary conditions under which he lives. Although among the lower classes every leper is especially dangerous to his family and fellow workers, cases of leprosy frequently appear in the higher social circles."

In 1909 the Franco-Danish Commission for the study of leprosy made the following few conclusions:—

- a. The conditions under which the leprosy bacillus grows and develops are unknown.
- b. The channel of invasion of the human body is unknown.
- c. Leprosy is a contagious disease.
- d. Heredity in leprosy has not been proved.
- e. A positive cure for leprosy is not known.

There are certain difficulties in presenting the subject of the contagiousness of leprosy in this community. The fear of the disease is almost without parallel, and any presentation of proofs may have the danger of further increasing this fear. The opinion of the contagiousness of lep-

rosy is not based on the oft misquoted case of Father Damien at Hawaii. It would be unnecessary because a hundred better examples of direct contagion can be cited both in Americans and Europeans. But the opinion today is that leprosy is communicable only upon close and intimate contact with cases that are sufficiently advanced to discharge live virulent bacilli from fresh lesions, and this danger is enhanced when the skin or mucous-surface is injured and direct inoculation takes place. Statements from British and Colonial delegates in 1910 were also significant: "The danger of infection from leprosy persons is greater where there is discharge from mucous membranes or from ulcerated surfaces."

Laws of resistance and immunity play probably as important a part in this disease as in others. Hansen, commenting on the Norwegian lepers that settled in the west and the gradual disappearance of the disease there, said that one of the first things immigrants learn in America is to keep their persons and their homes clean. In his opinion, cleanliness about the house and person is in most cases sufficient precaution to prevent the spread of leprosy. Since then this opinion has had to be modified. It is true that the disease is more prevalent among peoples who live in primitive and unhygienic conditions, but this by no means covers the whole problem. In hygienic centres the disease is practically absent; when the standards of living improve the disease tends to diminish. It should be said that the spread of the disease is brought about more readily by lack of hygienic conditions in addition to personal contact. Bayon suggests the following questions in seeking facts as to the contagiousness of leprosy: "The much greater incidence of leprosy in males than females. The universal spread of the disease under the most varied climatic conditions and the definitely greater proportion of infected children of leper mothers."

The action of Massachusetts in regard to segregation is abundantly justified. United States delegates to international conventions urged segregation, but so far without success. This occurrence of new endemic centres in the last fifty years should alone influence us. For what logical reasons should we believe that we are exempt from similar dangers? The disease undoubtedly has increased in the United States. In 1910 at the Bergen Conference, Ravogli, who attended the congress from America, made the statement that up to then (1910) no cases of leprosy had occurred among the soldiers who had returned after serving in the colonies, and he consequently did not think the contagiousness of leprosy was serious. Had Ravogli kept in mind the long incubation period of leprosy and the history of the disease in other countries he would have hesitated before making this statement. Several cases are given in literature of American sailors who had contracted the disease

outside the United States, and Hyde as early as 1878 gives a case contracted probably in Honolulu in 1863 or 1864. In looking over the Public Health Reports, for one year, from August, 1913, to June, 1914, I have been able to collect three cases among soldiers who had served in Cuba or in the Philippines.

I am not prophesying whether or not leprosy will increase in Massachusetts, but since much has been said of the dangers regarding the possible increase of tropical diseases here. I should like to add these four points for your consideration:—

1. Leprosy is exceedingly prevalent in Mexico, Brazil and Latin-America in general.
2. Boston is building up a South American trade and booming Boston as a port of entry.
3. The Panama Canal gives a more direct route to countries where the disease is endemic.
4. The unfamiliarity of our local authorities with leprosy.

I am, therefore, inclined to believe that Massachusetts is not free from the increase of leprosy. Russia believes that because she has acted as a sieve for the East in past generations, the disease is so prevalent there today. Germany claims she gets her cases from Russia, France from her colonies and her southern neighbors, Hawaii and other islands from China and Japan. In America we have a few states where the disease is prevalent, and a few others where the disease is endemic. What should the attitude of Massachusetts be, then?

First and foremost, a more tolerant and sensible attitude towards these unfortunate. A greater familiarity with the disease. A more sympathetic and true interest on the part of the state in their cases and a less complete isolation. To provide a modern hospital and modern buildings for the proper care and treatment of leprosy. In treatment much can be done, and reports of arrested cases are frequently made. The prevention of disfigurement, toxic febrile attacks, pain and general discomfort is successful in a great many cases. It is by no means so hopeless as was imagined some years ago. The closer clinical study of all cases reveals much that can be done for these people, but as far as our cases are concerned, very little more in the line of treatment can be attempted unless the state provides the institution with proper facilities. Dyer, in 1903, speaking from a sanitary standpoint, stated that "no institution pretending to care for lepers should be without the fullest equipment for bathing facilities. Water in leprosy is as potent in its prophylaxis as it is for remedial use." We have for two years studied the disease clinically and bacteriologically and we feel assured that there are many possibilities for treating our cases, but without equipment, without facilities to carry out our ideas, the work that has been done will prove to be without practical applicability. In the third place, the closer affiliation between university

and institution, so as to obtain the greatest good and stimulate interest in the problems which confront all state institutions is desirable, and lastly, federal control of immigration, which White recommended as early as 1894, with the establishment of at least two national leprosaria.

THE RELATION OF LEPROSY TO THE COMMUNITY.*

BY GEORGE M. KATSAINOS, M.D., BOSTON.

ANYONE should hesitate, after hearing the splendid results of Dr. Honeij's research to touch the same subject before so well informed hearers. But since I had already expressed the desire to speak on the same subject, I will say a few words with the hope that a discussion from another point of view might help as to a better understanding of this very important problem. After all, leprosy is the most peculiar disease after syphilis. In examining the "relation of leprosy, or rather of the leper to the community," we must have three questions in mind: (1) Is leprosy a contagious disease? (2) What is the manner of its transmission? (3) Is it a curable disease?

In answering these questions we must take into account not only contemporary evidence, but also such evidence as we may gather from the past. The earliest reference to lepers seems to be the well-known passage of Leviticus, beginning with chapter thirteen, and following. It seems, however, that what is called leprosy in these chapters is a combination of psoriasis and vitiligo, and of other skin diseases. The purification and care of the leper and the leper's acceptance after the necessary purificatory sacrifice into the Jewish community seem to point to any other than the real and accepted disease that we call leprosy. We are also tempted to believe that the medieval world, under the influence of ignorance and superstition which continued even after the times of Columbus, confused many other diseases with leprosy, and when syphilis invaded Europe it mistook it for leprosy, especially when mutilation resulted from syphilis, and they considered and treated syphilites as lepers. Hieronymus Frastatorius, the first who gave the name of syphilis to the disease known until then as *morbis Gallieus*, in the well known poem, who is justly thought of as the "Homer" of syphilis, as late as 1530 refers to leprosy along with syphilis, mistaking evidently syphilitic ulcerations for "hideous or horrible leprosy." This confusion renders evidence coming from the distant past suspicious. It would be best, therefore, for our purposes to limit our premises to facts lying nearer our own observations.

Since I happen to be a Greek, born in a coun-

try which unfortunately has not yet been able to get rid of this terrible disease and where sufferers of this kind are numbered in many hundreds, I might justly base my discussion on facts that I have observed there.

As I said, lepers were always to be found in Greece. But within one generation after the War of Independence in 1821, the disease took such an alarming development throughout the country and especially in Peloponnes, that there was near almost every city and village, a segregated district for lepers, where all sufferers, without distinction of sex, age, or rank, were isolated by force. According to my belief this spread was due to the invasion of the Egyptian army which, under Ibrahim Pasha, landed in Peloponnes in 1825, and for almost four years wrought great destruction from end to end of that country, transmitting at the same time the seed of this disease, which is one of the greatest pests of Egypt. My native village of Lagadia, in the centre of Peloponnes in the mountainous district of Gortynia, had before the revolution a population of about 1500. After the passing of the Egyptian this number was reduced to one-third. Before the invasion there was not one case of leprosy, but after it a large part of this pitilessly decimated population was infected. The village is situated on a mountain side and is surrounded with running brooks and steep rocks, into which many caves are hollowed. These caves during the fearful years of foreign yoke, served often as places of refuge for people fleeing the tyrant's bayonet and torch. These caves were almost filled with lepers soon after the invasion. What is true of my village is also true of most of the cities and villages of Peloponnes.

Nowadays there is not a single case of leprosy in my village, although the population has reached ten times the number of the inhabitants left after the revolution. Throughout the province, with the exception of the village Valtesiniko, where sporadic cases are still to be found, the evil has been exterminated. In all Peloponnes one seldom meets a leper, except in districts along the seashore.

But although in Continental Greece the disease is reduced to insignificance, on the islands it is met not infrequently. According to statistics made by Dr. G. Photinos, professor of dermatology at the University of Athens, and director of the Hospital (for skin and venereal diseases) of Andreas Syros, on all the islands there are more than one thousand lepers. In the lepers' asylum in Spinalonga of Crete there are 230 patients; in another asylum on the island of Cyprus there are 250.

But the cloaca of Greek leprotic filth is Athens, a city filled with sufferers of this kind. Since persons infected with this disease are driven out from every village or city in Greece, abandoned by relatives and friends, and excluded by all communities, they mostly find

* Presented at a meeting of the Boston Medical Library in conjunction with the medical section of the Suffolk District Medical Society, on March 31, 1915.

their way to Athens, some seeking cure and others working to earn their living. There, these victims of a most hideous disease, find at last a place where they are not persecuted, and there they live their hopeless lives among the other inhabitants, either begging, selling shoestrings, and such trifles, playing hand-organs, or engaged in any other light work out of which they may earn some means to prolong their horrible days which they spend in neglect, filth, pain, contempt, and despair, wishing for an early death, and yet clinging to life desperately.

On the other hand, a leper in Athens who belongs to a prosperous family, or who by his own work can earn a large income does not feel the despair of the above-described outcasts. On the contrary, he takes his meals in the same restaurant and at the same table as any healthy person; not infrequently he drinks from a common glass; he constantly has his hair cut or shaves in the public barber shops; and he sometimes sleeps on the same bed with a healthy individual. Furthermore, his clothes are washed in the public laundry, or by a private laundress who makes no discrimination among her patrons. He rides in public carriages; he deals openly in the public market; he attends services in the same church with the rest of the people, and, on election day, he presses through the crowd of voters to cast his ballot.

In sharp contrast with the attitude of the Athenian public toward the lepers, is the inhuman way in which they are treated elsewhere in Greece. As soon as the disease manifests itself, and not only the doctors themselves but also the peasants become aware of its presence, the sufferer, whether willing or unwilling, must leave his village and home and must spend the rest of his life alone in some deserted place. His relatives, if he is fortunate to have such, or sympathizing passersby leave, always at a distance from the leper's hole, the necessary food, on which he barely lives. A kind of strange isolation, that results not from a written law, but from a commonly felt necessity due to custom, providence, and above all to social and religious tradition. The Mosaic law laid down in Leviticus is followed to the letter: "All the days wherein the plague shall be in him he shall be defiled; he is unclean; he shall dwell alone; without the camp shall his habitation be." Lev. 13: 46.

I have known a shepherdess isolated on a desolate spot on one of the sides of a terrible ravine, in the midst of red oaks, prickly palms, and ash trees. Her husband carried her food to her in weekly rations consisting of simple bread and of a small quantity of some other foodstuff. The poor woman died in her solitude and remained there, unburied for about a month until some people ventured to cover with a little earth what was left by the jackals and wolves which had devoured most of the miserable remains of the body.

Another man, a native of my village, who had

emigrated to Patzas, was attacked by the disease while there. He hastened to return to his home, but he had to spend the remaining two years of his life in a cave opening at the foot of a precipice near a spring of water, condemned and neglected by all except his sister, who, poor though she was, divided her food with him, carrying his part daily up to a distance of 200 metres from the cave.

Such heroes of woe could justly repeat the immortal Sophoclean words of the mythical King Philoctetes, who, abandoned for years on the island of Lemnos, speaks thus of his suffering to Neoptolemos (Soph. Phil. 530):—

"I believe that no one beside myself could not only suffer but even behold these agonies. But I have been foretaught by necessity to resign to pains."

Thus for two years the faithful sister shared her meals with her abandoned brother. One day, after bringing the daily food to the usual place, she greeted her brother across the ravine, but no answer came from the cave. Casting away all fear, she climbed up to the polluted hollow, and there she found her brother dead. Her pleas for a religious burial were unheeded by both clergymen and laymen. Despairing at the end she took axe and spade in her hand, and like the faithful Antigone of old, she buried alone her unfortunate brother. Such is the life and end of all lepers who cling to the vicinity of their homes as long as breath is left in them.

But the scientific Greek world hypnotized, one could say, by the theories and teachings of Zampacos, the well-known great student of leprosy in the East, does no more believe in the contagiousness of the disease. They accept it as a congenital and hereditary disease, even as the most hereditary of diseases after syphilis. To this rule I make an exception, I believe, with my fellow countrymen that leprosy is inherited, and that the microbe exists in the spermatozoa and ova in the time of the conception. On the other hand, I do not deny that contagiousness is also possible, for otherwise I could not explain the existence and development of the disease in certain times and places. Nevertheless transmission by contagion is only a rare exception, taking place in a way that escapes our detection. It is certain that it can result only from a protracted intercourse, combined with many other conditions, such as time, place, and, above all, predisposition of the organism for the admission, cultivation and development of Hansen's microbe. As proofs against opponents of the hereditary theory, I shall lay before you some of the cases which seem to admit no doubt.

The brother of my grandfather on my mother's side, John Mpakrisioris, marries the daughter of a leper. The brother of his wife also is a leper, but her mother is in perfect health. Eight years after the marriage Mpakrisioris' wife, too, shows the same symptoms. She is segregated with the other lepers and dies, leaving behind

her husband and three children, two boys and one girl. The father marries again soon after the death of his first wife, and from his second marriage three other girls are born and brought up together with the two boys and one girl of his first marriage. They sleep on the same bed with the other children, they use the same domestic utensils, they are taken care of by the same mother. The two boys of the first marriage at their twelfth year emigrate to Patras to earn their living. Twenty whole years after their emigration, they become lepers and die from the disease. The third child, too, of the first marriage is a leper at the twelfth year, is isolated and dies in a few years. Even after the manifestation of the disease, one of her playmates, a girl cousin of hers, who was to be my mother, continued to steal to the cave of her lost companion day or night, and play with her, eat with her, and sleep with her for some time. Mpakrisioris and his second wife die in old age utterly unmolested by the disease that thrived about them. All the girls of the second marriage lived free from the contagion.

There is another relative of mine who marries a girl of a leper family. A child is born. The mother soon is a leper. After her death the husband marries again, and five more children are born, who live in constant contact with the child of the first marriage. This child twenty-five years after the death of his mother, is attacked by the disease that had taken away his mother. But the father, the second wife and all the children from the second marriage remained unmolested.

Charalambos Marinopoulos has three children from his first marriage. When his first wife dies he marries again, a woman of leprotic descent, who bears no children but lives with her husband and the three children of the first marriage for many years. At last, seven years after her marriage, she dies from leprosy, whereas her husband and the children remain entirely unmolested.

Andreas Kapsis, father of three children and a neighbor of mine, succumbs to the disease when about forty years of age, leaving behind three children, two boys and one girl. The boys had left their home ten whole years before the manifestation of the first symptoms in their father. About fifteen years after their father's death, they, too, become lepers and as such return home. The mother, disregarding all danger, prefers to be isolated with her boys and to take care of them to the moment of their death. Yet neither she nor her daughter was affected and they both live at the present day in good health. The mother is about ninety now.

The brother of this Andreas Kapsis dies, likewise a leper, and leaves six children. Of those children only two had died from this disease; the other four and the mother have remained pure.

Tracing Andreas Kapsis and his brother to their origin, we find they are the children of a

leper and that thus their family tree has its roots in the disease sown by the seed of the Arabian invaders who had come to Peloponnes at the time of the revolution. Most of the members of this family die either of leprosy or of tuberculosis. Even the present generation, in spite of the mixture resulting from intermarriage with Greeks, shows most clearly the racial characteristics of their Arabian ancestors, from whom they have had this terrible disease as their only inheritance. All four children of one member of this family die of consumption. The only child of his brother succumbs to the same disease, the father himself dying of anaesthetic leprosy. The two children of the third brother die likewise of consumption. The same disease carries away the fourth brother.

What I have said about this family is also true of three other families of the same village whose members thus fall from Seylla to Charybdis, dying either from leprosy or by consumption. Are we to accept that leprosy prepares the ground for consumptive tendencies? At least these examples tend to confirm such a theory.

The cases that I have in hand corroborating my statements would much exceed the limits of time. From all these, however, the following facts are observed:—

1. No case of transmission of leprosy from the husband to the wife or from the wife to the husband is found.
2. No case of contagion between neighbors, however close their relations with a leper may have been.
3. No person related to a leper by any marriage ties, but not of the same blood, has been affected.
4. Even when a child is the suckling of a leper woman it remains unmolested, if not born of her.

After all, the Hebraic curse may have a scientific basis: "The leprosy therefore of Naaman shall cleave unto thee, and unto thy seed forever." II Kings 5.

But just as any field is not good for any kind of seed, so every country is not appropriate for the development of leprosy. Thus the United States, in spite of the fact that not a few lepers have found refuge in this country, refuses to yield ground to the disease.

It is well known that Norway is a most fertile field. Yet when Hansen himself came to the United States and made thorough investigations in all places where Norwegians have settled, tracing especially families sprung from a leprotic root, he found no victims here. (Crocker's Diseases of the Skin.)

Is not this a reason to believe that America is not a land favoring the development of leprosy?

It is also indisputable that places by the seashore are more suited for the spread and permanence of the disease than inland districts. Thus, to come back to Greece, although leprosy invaded

first the central part of Peloponnesus as a truly Pharaonic plague in its most horrible form, and worked havoc for some time, its fading away has been equally rapid. Against all that we might expect from a curse of this kind, a disease not only chronic, but of a sudden appearance and seizing on so many victims at the same time in a place inhabited by a poor and above all, by an uneducated class of people, against all that we might expect from such a disease under such conditions, we find that within a period little longer than half a century the evil has been almost entirely exterminated.

In contrast with these fine results in inland places, we find that in spite of a more systematic and a more persistent prosecution, leprosy still thrives on the coast and on the islands, especially in Crete. And yet on this island a leper's home has been established since 1897 at Spinalonga and drastic measures are taken to segregate in this home every leper of the island as soon as the first symptoms of the disease appear. In Cyprus, too, after the English occupation (1878) another lepers' home has been established and severe measures have been taken against the evil. Yet there are 250 lepers in Cyprus and 230 in Crete.

These facts lead me to the conclusion that the proximity of sea water and fish food may be potent factors for the permanence of the disease.

Athens, on the other hand, is an inimical place to it; for, in spite of so many lepers who, driven out from every other part of Greece, find a refuge here and live undisturbed among other inhabitants, no case of contagion is reported, and no leper has been born.

With regard to the therapy of the disease, the best means afforded thus far is salvarsan, which I have seen extensively applied and which I have used often myself.

There is in Athens a very good hospital, named after its founder "Andreas Sygros," which has been established since 1905, and has since become a "pool of Siloam" for lepers, and is a unique institution in the whole world for the scientific study of leprosy. I had the good fortune to be connected with this hospital from August, 1913, to July, 1914, and to make a thorough observation of the splendid work conducted by Dr. George Photineos, a young professor of dermatology at the University of Athens.

The lepers are not admitted as bed patients in this hospital, but they find here a place where they are well received, moulded, directed, and encouraged, and above all, where they are subjected to a splendid treatment without the least expense on their part, because the institution is well supported by the Greek government. Here one can see the disease in all its phases and stages, in sufferers of every sex and age, and within a period of six months can have a good idea of the disease itself, and of the method of treatment, as well as of the results of the salvarsan therapy.

But Dr. Photineos has extended his sphere of action beyond this institution. In company with his assistants, Dr. Michaelides and Tsamaloucas, he went to Crete, in order to make a careful study of the various forms of the disease, supplied by the 230 patients of the Spinalonga lepers' asylum. He likewise provided himself with all things necessary for the Wassermann reaction, and applied this method in a temporary clinic established by himself. Combining all the material provided through these various sources, he has come to the following conclusions:—

1. In cases of tubercular leprosy the Wassermann reaction is positive on 76%.
2. In case of nervous leprosy its positiveness is 38%.
3. In case of mixed leprosy its positiveness is 75%.
4. This reaction seldom and with great difficulty changes from positive to negative, and this happens only after numerous injections—not less than 8—of salvarsan or of neosalvarsan. But since the patients do not return regularly to the hospital, exact statistics of the change and of the duration of negativeness cannot be given.
5. The curative action of salvarsan on lepers is not encouraging and is far from being considered radical. The nodules of tubercular leprosy often fade away, but to obtain such results 10-15 intravenous weekly injections of full doses of salvarsan are necessary.

The effects of the treatment in their best form I have had the opportunity to witness myself on a man coming from Cythera. He had come with tubercles as large as almonds covering his face, his back, his breast and abdomen, with a distinctly leprotic appearance. He was subjected to no other treatment except to ten intravenous injections of salvarsan. Last June, that is six months after the treatment, he came back with body cleared of every tubercle, in good condition and better spirits. No one looking on the face of this man could suspect that he was still a leper, a fact proved by discolorations of the skin of the breast and abdomen. These were sometimes as large as a silver dollar and always without sensation. The Wassermann reaction on him was still positive.

Most of the lepers treated, owing to their destitute condition and ignorance, do not persist in the treatment long enough to make the basis of accurate statistics. The difficulty is more heightened by the fact that the use of salvarsan does not extend as yet over a sufficiently long period.

Each leper entering the Hospital of Andreas Sygros is carefully examined about his past and about his family history. This examination always proves that leprosy is congenital. It is surprising to witness the capacity of the personnel of this hospital, consisting of Dr. Photineos, Dr. Evangelou, Dr. Petropoulos and Dr. Tsamaloucas, in diagnosing the disease at first sight. The latter especially is known in his circle as the Laconian Dog of Lepers. In the diagnosis, sight,

touch and smell are applied, for it is known that a leper has a particular and characteristic smell which cannot be mistaken by a man who is trained in this line. In this hospital lepers are not segregated from patients of other diseases. On the contrary they are allowed to come in contact with each other, and they talk about their trouble to any person with no shrinking or restraint. By all leprosy is regarded as any other common disease. No particular care is taken, and when the syphilis is treated the leper is laid down on the same table, and vice versa.

The women, who are more sensitive than the men, paint their eyebrows when the hair has fallen. Peasant women, who wear a kind of scarf over their heads, lower this a little over their forehead to hide their disfigurement.

In closing, I wish to express the hope that the Greek government may continue to take good measures and to apply them earnestly and thoroughly in behalf of the several hundreds of its leprotic citizens and to the safety and honor of Greek society and state.

Book Reviews.

Pathological Technique, Including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By F. B. MALLORY, M.D., Associate Professor of Pathology, Harvard Medical School; and J. H. WRIGHT, M.D., Pathologist to the Massachusetts General Hospital. Sixth Edition, illustrated. Philadelphia and London: W. B. Saunders Company. 1915.

The new edition remains in appearance like its predecessors. It contains, however, a number of additions not of extreme importance, although as is customary with the authors of this work, these methods are of proved usefulness: for instance, Bielschowsky's silver impregnation method for nerve fibrils, Bensley's technic for cell granules and mitochondria, Herxheimer's rapid method for staining fat, and the various new methods of importance in the diagnosis of syphilis and demonstration of the treponema pallidum.

There are a number of new and very excellent photomicrographs.

A discussion of this well known authoritative and standard work would be superfluous. No pathological laboratory in school or hospital is without it. The fact that the book is kept up to date by its authors is sufficient recommendation for such a popular and constantly praised work.

House Flies and How They Spread Disease. By C. G. HEWITT, D.Sc., Dominion Entomologist,

Ottawa, Canada. Cambridge, England: University Press. 1912.

This belated volume in the series of Cambridge manuals of science and literature, presents at a seasonable time of year a brief popular study of the house fly as a disseminator of infection.

It may be regarded as a preliminary sketch for the author's larger technical work on "The House Fly," reviewed in the issue of the JOURNAL for June 10, 1915. Unlike the latter work, however, and the other larger volume by Howard, the present manual aims chiefly at such description of the fly and its life habits as shall be of value in the education of the intelligent public to the importance of this ectoparasite and of its extensive destruction. It is well illustrated with 19 figures in the text and concludes with an excellent brief bibliography on the subject.

The Elements of Military Hygiene. By P. M. ASHBURN, Major Medical Corps, U. S. A. Second edition. Boston and New York: Houghton Mifflin & Co.

This monograph on military hygiene was originally written and especially arranged for officers and men of the line, with the purpose of informing and interesting them in matters of camp sanitation, that they might coöperate more effectively with the medical staff. During the six years which have elapsed since its first appearance, the science of military hygiene has made noteworthy progress and its advances are incorporated in this second edition. Much of the text has been revised and rewritten and a supplementary chapter has been added on the prevention of mental and nervous diseases. The volume should continue its usefulness not only to rankers but to medical officers especially in the volunteer service and the militia.

The Diagnosis and Treatment of Tropical Diseases. By E. R. STITT, A.B., Ph.G., M.D. Philadelphia: P. Blakiston's Son and Company. 1914.

This clinical manual by a medical director in the United States Navy is a valuable brief textbook in an important branch of medicine which has rather recently become conspicuous in the professional field. It is divided into two parts, the first dealing with a description of tropical diseases and their treatment, with special emphasis on epidemiology and prophylaxis; the second with the diagnostics of tropical diseases, their clinical side being presented from the standpoint of signs and symptoms which are connected with anatomic or clinical groupings rather than with the individual disease. The work is well illustrated with 86 text figures and should prove an extremely valuable practical manual, especially for field work in the tropics.

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WHOOPING-COUGH.

WHOOPING-COUGH is apt to be looked upon by those who have not inquired into the matter as a not very serious affection, but when one finds that it annually destroys the lives of no less than ten thousand American children it assumes an entirely different aspect. While it is usually less fatal than scarlet fever or measles, in some seasons the mortality from it is as great as from either of these afflictions. Like them, it is often attended by grave complications and sequela and not infrequently, even when there may have been no complications, so reduces the vital resistance as to leave the patient an easy prey to any chance infection or other source of disease. Pertussis is especially dangerous for infants, and ordinarily in infants and young children the mortality from it is quite as high as that from scarlet fever.

As a result, however, of the isolation, in 1906, of the Bordet-Gengou bacillus, which is now recognized by the greater number of authorities as

the causative agent of the disease, it would seem that a new era in its prophylaxis and management is opening before us. Thirty years ago Goodhart (*Guide to the Diseases of Children*, 1885) remarked: "The remedies now in vogue for the second stage are in no sense specifics; they control the violence of the paroxysms, but have no destructive action upon the supposed germ which causes them. But if the disease be due to a germ, and the behavior of the disease is certainly in favor of this view, then it is to be hoped that a specific will one day be found, and obviously any drug exhibited with such an object must be applicable at any time during the life of the germ." The discovery of the specific bacillus has naturally been of service in increasing our general knowledge of whooping-cough. Thus, if this etiology be conceded, it is found that, as in the case of scarlet fever, the period of infectiousness has been overestimated. In a paper published in the *New York Medical Journal* for May 22, Dr. Paul Luttinger of the research laboratory of the New York City Health Department states that the Bordet-Gengou bacillus is most often met with in the sputum in the catarrhal stage and rarely later than the first week of the paroxysmal stage, and this fact has been confirmed by various other observers.

In the early part of last year the pediatricians of New York, profoundly impressed with the extent of the ravages of the disease, and believing that by systematic effort a distinct improvement in the situation could be effected, made an urgent appeal to the health department to take the matter up and devote its most serious attention to it. The department promptly assented to this request, and a survey conducted by the bureau of infectious diseases disclosed that among the chief reasons for the continued prevalence of whooping-cough were the following: Ignorance of the general public regarding the menace of this disease, insufficient attention, on the part of physicians and parents, to the isolation of the patient during the early period of the disease, lack of suitable dispensaries for patients ill with the disease, and neglect, in a large proportion of cases, to notify the health authorities. A special clinic for whooping-cough was then established in connection with the research laboratory, and this afforded an opportunity to follow up the patients in their homes. A large number of additional cases, which had not reached the notice of the health department, were thus discovered, and, in short, it was found that only about one-

quarter of the cases of whooping-cough occurring had been reported. It was realized, however, that physicians were not very largely responsible for this poor showing, inasmuch as it was not usually customary among these people to call in a physician for this disease. For some time past all cases of the disease reported by dispensaries, as well as all cases known not to be under the care of a private physician, have been kept under supervision by the district nurses of the bureau of infectious diseases; the nurses leaving cards of instruction and charging the family to keep the child quarantined for one week from the day on which the whoop appears. A week after the first appearance of the whoop permission may be given for the child to leave the premises, provided it is accompanied by an older person who will see that it does not play with other children, enter other homes, attend places of amusement or ride on street cars.

In the paper referred to, Luttinger gives a report of the results met with at the whooping-cough clinic from its opening in August to the end of the year 1914. In the treatment, drugs were employed in some of the cases and stock vaccines prepared from the specific bacillus in others, while in some instances both were given, and it is stated that these vaccines seem to have shortened the duration and severity of the paroxysmal stage; the average duration of the whoop being twenty-five days, as against forty days in those treated with drugs. To be successful it was found that the vaccine must be given in large doses. At first an initial dose of fifty million was given, but later this was increased to 250 million. In a small series of cases the vaccine was used successfully as a prophylactic, and in the prophylactic cases three large injections were given at three-day intervals; the first dose being 500 million, the second one billion, and the third two billion. It seems to have been the general experience that specific vaccines are of greater efficacy in prophylaxis than in the actual treatment of whooping-cough, but it is not to be expected that from any vaccine results can be obtained equal to those from a serum like diphtheria antitoxin. It would seem probable, from the experience at this clinic, that in some at least of the instances in which the vaccine was without beneficial effect, the reason for the failure has been the insufficiency of the doses employed.

At the conclusion of the report the belief is expressed that further experiments, with the view of obtaining more effective vaccines, and a

closer coöperation of the profession in public health education, will help largely in the eradication of this scourge of childhood. As the studies progressed the necessity of more whooping-cough clinics, and of a pertussis hospital, became more and more apparent. Information just received is to the effect that the good results previously noted at the whooping-cough clinic in New York from the use of pertussis vaccine have continued unabated to the present time; in fact, they have been even better since certain modifications have been made in the preparation of the vaccine. Dr. Luttinger writes: "The applicants for treatment recommended by private physicians and institutions are so numerous (as many as eighty on a single afternoon recently) that we are fast outgrowing our present quarters and our appropriation. Regarding prophylaxis, while none of the vaccinated contracted the disease, we cannot be absolutely sure of the protective value of the vaccine until we have an opportunity to compare vaccinated and unvaccinated cases during some circumscribed outbreak of the disease in an institution." It may be remembered that about a year and a half ago Dr. A. F. Hess of New York reported that in such an outbreak in an infant asylum, while the vaccine treatment did not appear to be of curative value, it proved of considerable prophylactic value. Of the 400 children in the institution, 244 had the vaccine administered to them prophylactically—in every instance before there was any sign of an attack—and of these, 20 developed the disease.

TUBERCULOSIS.

THE eleventh annual meeting of the National Association for the Prevention and Control of Tuberculosis was held on June 14, 15 and 16 in Seattle, Wash., and was attended by about 400 delegates from all parts of the United States. At the evening session on June 14 the principal address was presented by Dr. Edward O. Otis of Boston on "The Child and the Community;" another by Sherman G. Kingsley of Chicago on "The Importance of Ventilation in Schools;" and a third by Dr. Enrico Castelli of New York presenting the results of his experimental work in the medical school of Genoa, Italy.

On June 15 Dr. George M. Kober of Washington, D. C., president of the Association, in his

annual address called attention to the steadily diminishing ravages of tuberculosis throughout the United States.

"Tuberculosis in all its forms carried off during the year 1913 a total of 143,000 victims in the United States, which signifies the presence of approximately 1,430,000 consumptives with an economic loss of at least \$214,500,000. Great and grave as the problem may appear, there is certainly hope when we consider that the death rate from this disease has been reduced from 326 per 100,000 population in 1880 to 146.6 in 1913, which means that if the former rate had been continued the number of deaths from this cause would have been 322,027 instead of 143,000 in 1913, equivalent to a saving of 179,027 during one year."

At the conclusion of his address Dr. Kober presented the following recommendations for immediate action on the part of the Association:

"1. In view of the fact that from six to seven per cent. of the samples of the average market milk contain bovine tubercle bacilli, let us urge, by education and otherwise, that all milk, unless derived from tuberculin-tested animals, be pasteurized or scalded.

"2. Since the mortality from tuberculosis among inmates of unsanitary homes is often double and treble that of the general population, it is our duty to see that the building regulations are so modified as to prohibit the renting of houses unfit for human habitation.

"3. Because of the fact that nearly one-half of the 143,000 deaths from tuberculosis in 1913 occurred among the industrial workers, who constitute about one-third of the population, we should strongly urge the enactment and enforcement of laws for the removal of dust and fumes, the foes of industrial life."

With regard to the infection of children by bovine tuberculosis it may be noted that the British Royal Commission on tuberculosis has recently reported that not only are infants and children especially endangered by this form of infection, but that adults may also be directly infected with the bovine type of the disease. The Imperial German Commission on tuberculosis has also recently reported that of 84 children examined by them, 21, or 25%, had derived their infection from bovine sources.

Drs. Park and Krumweide of the New York City Health Department estimate that at least 300 children die every year in New York City from tuberculosis. Dr. Hess of the same city found that of 107 samples of raw milk obtained from as many different dealers, 16% of them could produce tuberculosis since they contained living tubercle germs. Dr. Churchill of Chicago reports that the records of surgical tuberculosis

for the year 1913 at the Children's Memorial Hospital showed that there were 64 operations on bone and joint tuberculosis, the kind that most often has been found to come from bovine sources. Dr. Brown of Saranac Lake considers that 8% of all cases of tuberculosis are of bovine origin. The Chicago Health Department reported that for the year 1910 the total number of milk samples examined showed 8.9% to contain tubercle bacilli. These were all in the raw milk samples, as the pasteurized milk showed none.

In the conclusion of his address Dr. Kober also advocated the following special measures to be undertaken for the prevention of tuberculosis by states and municipalities:

"1. Compulsory notification of cases to the health authorities as soon as the disease is recognized. The health authorities should also resort to disinfection of the home and personal effects, especially upon the death of the patient or vacation of the premises.

"2. The enactment and encouragement of laws against expectoration, coughing into the faces of persons, and the common use of individual drinking cups are called for. Provisions should be made for individual drinking cups or fountains, and for suitable spittoons and their disinfection in all public buildings. The public should not cultivate an exaggerated fear, but has a right to insist upon clean and decent precaution.

"3. The sanitary condition of hotels, lodging houses, theatres, churches, schools, ambulances and passenger service should be under the control of the health department, and house cleaning should be accomplished as far as practicable by the vacuum system.

"4. Marriage with a tuberculous person should not only be discouraged, but prohibited by law. A tuberculous mother should not nurse or kiss her infant, and in the selection of a wet nurse a certificate of health should be demanded.

"5. Isolation of tuberculous patients should be insisted upon in hospitals, asylums and public institutions. In private life, the patient should occupy at least a separate bed, use separate eating and drinking utensils, and neither receive nor give kisses. Careless and unteachable cases should be cared for in hospitals."

In his annual report as secretary of the association, Dr. Charles J. Hatfield stated that in spite of the universal financial depression the

year has been favorable for the work of the organization.

"Field secretaries have operated in more than 20 different states; over 100,000 churches have coöperated in the Tuberculosis Day movement, and the Red Cross Christmas Seal campaign has resulted in an increase of 15% over the previous year. The total number of stamps disposed of at the last sale was 53,000,000, netting practically \$530,000 for the tuberculosis movement. The membership of the National Association now numbers more than 2,400, including those most actively interested in the anti-tuberculosis work scattered throughout the United States and in almost every country of Europe and Asia, and even down in South Africa and Australia."

The National Association for the Study and Prevention of Tuberculosis has issued a statement warning consumptives not in adequate circumstances against traveling in the West and Southwest in search of health. They state that from 40% to 90% of all deaths from tuberculosis in the West and Southwest are of natives of other states who have migrated there, many of them hopelessly incurable and without sufficient funds to support them. They call attention to the fact that tuberculosis can be cured in any part of the United States, and it is far better for a consumptive of moderate means, such as the average working man, to go to a sanatorium near at home, than to go West and live in a more favorable climate without proper food or medical care.

LEPROSY.

IN another column of this issue of the JOURNAL we publish two articles on leprosy presented at a recent meeting of the Suffolk District Medical Society; one, by Dr. Honeij, deals particularly with local conditions in Massachusetts in relation to the prophylaxis and care of the disease; the other, by Dr. Katsainos, presents a historic review of leprosy particularly in Greece, with emphasis upon what the author regards as evidence of its hereditary nature. It is interesting in this connection to note the action which has recently been taken in Russia with regard to the permission of marriage among lepers. The Russian Medical Council, according to a statement in the *Lancet* of June 19, has expressed its opinion that

the hereditary factor in leprosy is trivial in importance, even in marriage between cousins, both of whom are, at the time, lepers. Moreover in such cases the birth rate is exceedingly low, which still further reduces the likelihood of such transmission. The *Lancet* expresses itself editorially as essentially in accord with the opinion of the Russian Medical Council.

"There can be little doubt that the best way of isolating lepers in affected countries is to intern them, under proper medical supervision, in special colonies or settlements where they can, as far as is practicable, lead active and useful lives, engaged in farming and other suitable occupations. Leper asylums and such institutions are best reserved for cases of old and advanced disease where incapacity for employment has been brought about by the ravages of the malady. In the leper colonies or settlements patients of both sexes have to be isolated, and we would raise no objection under certain conditions to the union of these persons if they desired to marry. Young leprous adults of both sexes are more likely to become more hopeful, contented with their lot, if they have a home of their own and a family life, even of a limited extent. The fertility of leper marriages is not great, and as the leprosy advances impotence usually develops. It is imperative, however, that arrangements should be made in advance, and the reasons carefully explained beforehand to the leprous parents, to remove at once any newly born infant from the custody of its mother to a distant home provided by the authorities where the child may grow up without danger of acquiring the infection from its maternal parent. Leprosy is not believed to be a hereditary disease, but close and intimate contact, such as that between a mother and child, is regarded as affording the surest means of conveying the infection from one person to another. We freely admit that the parting of the leprous mother from her newly born child would be painful to her, but in the interests of the child such parting is absolutely necessary and should be regarded as inevitable by both parents. The lot of the leper is admittedly a hard one, and whatever can be done, consistent with medical knowledge and science, should be done in order to alleviate as far as possible the hardships of these unhappy sufferers. With the indicated reservations, we agree with the Russian Medical Council in their view that the marriage of one leprous person with another is, under certain circumstances, permissible."

With regard to the treatment of leprosy, attention may be called to the biannual report of the Hawaiian board of health for the period ending in June, 1912, in which the medical superintendent of the leper colony at Molokai, gives an account of the various remedies there used.

the methods of their application, and the results secured. For a decade warm sulphur baths have been a routine hygienic method at the settlement, and while not specifically curative of leprosy, are grateful to the patient, cleansing, and ameliorative of the systemic as well as the local effects of the disease.

After reviewing the number of patients treated for intercurrent diseases, Dr. Goodhue, the medical superintendent, continues:—

"General surgical cases have had the usual attention at bi-weekly surgical clinics, and considerable work has been done in the surgery of special organs, principally as observed in the nose and throat. A system of anatomical charts for purely lepromous cases has been instituted in which lesions peculiar to the disease are marked to code diagram, the key to which is indexed for ready reference. Annotations are added where deemed necessary for further amplification."

"Approximately 75% of the inmates at the Leper Settlement are receiving special treatment for leprosy, and a number of patients now receiving tonic and nutritive remedies, are also taking specific treatment."

"Chaulmoogra oil is the most popular remedy. Strychnine in graduated doses, or elixir of iron, quinin and strychnine, according to preference. Both are decidedly ameliorative."

"Anti-leprol is a refined product of chaulmoogra oil, and is tolerated much better by the stomach."

Of the newer remedies employed, Dr. Goodhue mentions thoradlin paste and ointment and anti-leprol. He believes the latter superior to chaulmoogra oil for the following reasons:—

"First. It is a purified product of chaulmoogra oil, and as such can be taken without gastric irritability."

"Second. Dosage may be increased to the maximum more rapidly and without impairing the appetite and consequently digestion and assimilation, as occurs so frequently with the ingestion of chaulmoogra oil."

"Third. Very much larger doses may be taken, so that the disease comes under the influence of treatment more quickly."

"Fourth. The oil is uniform, does not thicken and form a resinous deposit."

"Fifth. Easy to dispense, as it requires no previous treating to effect solution."

"Anti-leprol has not become so popular here as chaulmoogra oil treatment for the reason that the latter has acquired a wonderful prestige, but a number of patients who are unable to retain chaulmoogra oil, have had no difficulty in taking large doses of anti-leprol, and are thus prevented from becoming discouraged and refusing all treatment."

Finally Dr. Goodhue describes the use of serum and anti-toxin emulsion. The serum is ob-

tained by the application of sinapisms, aseptic withdrawal of the fluid, precipitation of possible bacilli by centrifuging, and injection of the sterilized supernatant liquid. At first the serum was given diluted with normal salt solution; later it was given pure without ill effects. The purpose of its use is the hope of increasing bacteriolytic activity. The following objections to its use have been noted.

"First. It will not keep well unless on ice."

"Second. General dislike of most Hawaiians to injections."

"Third. It is difficult to obtain a regular supply to be depended upon. The anti-toxin emulsion consists of carefully selected non-neurotic, excised lepromata, which are thoroughly cooked, desiccated in hot-air sterilizing oven, pulverized and made into a definite emulsion with glycerin, and given *per os*.

"Improvement consists in greatly lessened digital flexion and inter-osseous atrophy as well as general body-tone."

"From clinical observation I believe that an excess of sodium chloride or any other article of diet preserved through the medium of this drug greatly favors lepromous bacillary activity and proliferation. Certainly it is true that foods which disturb the alkalinous balance and increase the reaction in the circulating and other fluids of the body, largely neutralize the ameliorative action of chaulmoogra oil in leprosy."



HAY FEVER.

In another column of this issue of the JOURNAL we publish an important original article by Dr. Joseph L. Goodale of Boston on the pollen therapy of hay fever, a subject on which he has made individual research of great value, and upon which he has presented previous communications. Dr. Goodale divides the hay fever season into four periods: First, that of the early flowering plants, chiefly trees and shrubs, of April and May; second, that of the flowering grasses in May and June; third, that of the mid-season flowers of July and August, chiefly Compositae; and fourth, that of the late Compositae of August until frost. This paper, then, representing research recently completed, is in season for the aid of the profession in the treatment of hay fever during the third and fourth periods this year.

Dr. Goodale goes at length into the technic of collecting the pollen of various plants, preparing the extracts, employing these extracts in the di-

agnostic tests and in the treatment of the condition. He also discusses the question of ana-phylaxis in relation to this method of treatment. Perhaps most interesting of all is his discussion of the biologic relation between the different plant proteids in the production of the disease. It is in this field that Dr. Goodale's most valuable and original work upon this subject has been done. He presents in an interesting diagram the phylogenetic relationship of the different plant orders and families and suggests the far-reaching possibilities of the application of the knowledge of this relationship to the treatment of hay fever by injection of pollen extracts. Dr. Goodale has been particularly qualified for the successful performance of this important piece of medical research, since to it he has brought not only his professional skill but his special knowledge as an expert botanist.

CANCER.

THE attention of the profession is called to the fact that the next issue of the JOURNAL will be published as a special Cancer Number. It will contain a series of special original articles by well known authors on various topics connected with the hygienic, clinical and surgical problems presented by cancer. This publication is in conformity with a plan originated by the Philadelphia State Medical Society whereby 73 American medical periodicals, during the current month, will issue editions devoted to this subject. The importance of this intensive movement on the part of the medical press is of considerable moment, since it marks a definite and generalized effort to emphasize to the medical profession and the intelligent public the seriousness of cancer and the urgent desirability of its prompt diagnosis and treatment and its prevention by early prophylaxis.

MEDICAL NOTES.

MEASLES STILL PREVALENT IN NEW YORK.—There were 1277 deaths and a death rate of 11.47 per thousand of the population reported during the past week as against 1258 deaths and a rate of 11.75 in the corresponding week in 1914, an increase in the absolute number of deaths of 19 and a decrease in the rate of .28 of a point, which is equivalent to a relative decrease of 31 deaths.

The only noteworthy feature of the week's mortality was the increase in the deaths from

measles and broncho-pneumonia, both causes being intimately associated one with the other.

Viewed from the point of age grouping the mortality of children under one year of age was considerably higher than the corresponding week in 1914, there being an increase of 49 deaths reported. The mortality of the other age groups was slightly below that of the previous year.

The death rate for the first twenty-six weeks of 1915 was 14.21 per one thousand against the rate of 14.79 during the corresponding period of 1914, a decrease of .58 of a point.

NATIONAL COMMITTEE FOR THE PREVENTION OF BLINDNESS.—The sixth annual report of the New York State Committee for the Prevention of Blindness covers the period from Nov. 1, 1913, to January 1, 1915, and records the history of its six years of work and present affiliation. On Jan. 1, 1915, it was consolidated with the American Association for the Conservation of Vision, making of the two organizations one national body, to be known as the National Committee for the Prevention of Blindness. An income of \$15,000 has been provided to meet the expenses of the new national organization for the first year of its work. This organization is the natural outgrowth of the two committees above mentioned. The National Committee for the Prevention of Blindness, organized by the Russell Sage Foundation on April 27, 1908, was established to extend the work among laymen, instituted by the American Medical Association in its committee on ophthalmia neonatorum. The objects of this committee as defined were: "to ascertain the direct causes of preventable blindness, and to take such measures, in coöperation with the medical profession, as might lead to the elimination of such causes"; and this was to be done through investigation, education, publicity, legislation, and coöperation. As its work increased and its membership grew it was reorganized as an independent state organization, known as the New York State Committee for the Prevention of Blindness. Early in its history it became the recipient of requests from various states throughout the union for material in the work of the prevention of blindness, which work it could not, as a state organization, adequately take up. In December, 1910, there was organized a national association, called the American Association for the Conservation of Vision, which, owing to various causes, became inactive within a few months. A plan to consolidate the two committees was brought to the attention of the Rockefeller and Russell Sage Foundations, who gave assurance of some financial support, and arrangements were completed Jan. 1, 1915. Mr. Edward N. VanCleave, president of the Ohio State Commission for the Blind and superintendent of the Ohio State School for the Blind, is managing director of the committee. The committee proposes during the present year to continue its

study of the occurrence and results of ophthalmia neonatorum; to assist in securing the enforcement of the law requiring this disease to be reported early; to secure provisions whereby reported cases may be adequately and promptly treated; to extend educational work as to the methods of prevention and cure of this disease; to support or initiate legislation which shall provide for the standardization of midwife schools by the State Department of Education; and to continue its study of unnecessary blindness and visual impairment resulting from wood alcohol, trachoma and other infections, industrial accidents and inadequate lighting; and to take such measures as lie in its power to aid in eliminating such causes.

A NEW PUBLICATION.—The publication of a new journal, the *Hospital News* is announced. Its editors-in-chief are Wilfred M. Barton, M.D., and Walter A. Wells, M.D., and its associate editors are Tom A. Williams, M.D., Francis R. Hagner, M.D., W. P. Carr, M.D., James A. Gannon, M.D., Robert Scott Lamb, M.D., C. Augustus Simpson, M.D., S. B. Muncester, M.D., Prentiss Willson, M.D., Thomas A. Lowe, M.D., John O. Skinner, M.D., Harry S. Lewis, M.D., Philip W. Newton, M.D., Kiev, Russia.

ST. LAWRENCE STATE HOSPITAL.—The annual report of the St. Lawrence State Hospital, Ogdensburg, N. Y., for the year ending Sept. 30, 1914, states that 2460 patients were treated during the year. The number of patients discharged recovered was 117 and 82 others were sufficiently improved to justify their return to their homes and former occupations; 30 others, who had shown no improvement but whose mental condition had become stationary, were discharged to the custody of friends. The voluntary patients admitted during the year numbered 38—27 men and 11 women. There were in all 75 voluntary cases under treatment. Of the patients admitted during the year 49.5% were subsequently returned to their homes benefited by treatment. The entering class of the nurses' training school numbered 39 and the graduating class numbered 9. The number of pupils in the training school at the end of the year was 65.

AMERICAN SOCIAL HYGIENE ASSOCIATION PRIZE.—In the issue of the JOURNAL for April 29, 1915, we published an account of the offer of a prize of \$1000 by the American Social Hygiene Association, to be awarded to the author of the best original pamphlet on social hygiene for adolescents between the ages of twelve and sixteen. The committee of judges for this prize has just been announced and includes the following physicians: Luther H. Gulick, M.D., president, The Camp Fire Girls, New York, formerly director of physical training in the New York City Public Schools; Milton J. Rosenau, M.D., professor of preventive medicine and hygiene, Harvard

Medical School, Boston; and Victor C. Vaughan, M.D., president of the American Medical Association, dean, Department of Medicine and Surgery, University of Michigan.

DECREASE OF FOOT AND MOUTH DISEASE.—Report from Washington, D.C., states that on June 28 an extensive relaxation of the federal quarantine against foot and mouth disease became effective. Interstate movements of livestock were resumed between "restricted area" and points in "free" and "closed" area for immediate slaughter. Shipments for any purpose have been permitted to all points except those in "closed" area. In Illinois a large area, which, however, does not include the Union Stock Yards, was made free. All Indiana became free, including the belt stock yards at Indianapolis. In Ohio, the Union Stock Yards at Cincinnati and the Cleveland Union Stock Yards became restricted area to handle livestock for immediate slaughter only. The Pittsburgh Union Stock Yards are in the same classification. The hog and sheep divisions of the West Philadelphia Stock Yards became modified area. Stock yards at Milwaukee and Cudahy, Wis., passed to the restricted classification. Other changes affected Maryland, Montana, New Jersey, New York, Rhode Island, Virginia and West Virginia.

AWARD OF THE KUSSMAUL MEDAL.—It is announced that the Kussmaul medal and the prize from the Kussmaul endowment in surgery have been awarded by the faculty of the University of Heidelberg to Professor Braun of Zwickau.

EUROPEAN WAR NOTES.—On June 15 a unit of 32 surgeons and 75 trained nurses, organized at Chicago, sailed from New York aboard the steamer *View Amsterdam* for Falmouth, England. This unit, which will form a part of the British Army Medical Corps, is in command of Dr. James M. Neff of Spokane, Washington, and Dr. George B. Davis of Chicago, both of whom have been commissioned lieutenant colonels. This Chicago unit will probably be assigned to a base hospital in France.

Report from New York on June 17 states that Dr. Kirby-Smith of Sewanee, Tenn., who has recently returned from Serbia, says that the typhus epidemic in that country is now well under control. At the time of his arrival in Belgrade there were 1500 cases of the disease in a single hospital with only four physicians in attendance, and the deaths averaged 35 or 40 a day. He estimates that there has been a total of nearly 20,000 deaths from the disease.

On June 16 it was announced by the Serbian general consulate of New York that an additional sum of \$5000 had been assigned by the committee of mercy to the Columbia University Relief Expedition. This, with \$10,000 already raised and gifts from other sources, makes a total of \$22,500 available for this expedition, which will soon sail on the steamship *Thessaloniki*.

An enthusiastic contemporary in the daily press, in an editorial describing with praise the work of Americans in the relief of the distressed peoples of Europe, refers particularly to Dr. Richard Pearson Strong, "who, it seems, has gripped the Serbian typhus plague with a firm and steady hand, and is snatching order out of chaos and cheering a whole nation with one foot in the grave." The mixture of this metaphor, which somehow reminds one of the horrible examples in books on rhetoric, must surely be pardoned for the sake of the sincerity of its intended commendation.

Report from London on June 28 states that Dr. W. J. Maloney of New York, who has been serving as a surgeon with the allied forces of the Dardanelles expedition, has been seriously wounded and is now lying in hospital at Alexandria, Egypt.

On June 29 Dr. Henry L. Davis of Lynn, Mass., sailed from New York for England to join the British Red Cross in the field.

THE MEDICAL LIBRARY ASSOCIATION.—The Medical Library Association, consisting of a membership of 52 libraries and 46 individuals, has completed 18 years of its existence and proved the worth of its object,—to foster medical libraries and the maintenance of a system for the exchange of medical literature among them. In other words, it has formed a clearing house through which books, journals and reprints, or lists of them, may be sent from one library to another. Lists of material for exchange are sent monthly to members of the Association, this method having been found more useful than the system of quarterly bulletins issued formerly. By careful use of funds the treasurer's report for the past year showed a substantial balance with which it is planned to extend still further the work of the Association. Lieut.-Col. C. C. McCulloch, Jr., of the library of the Surgeon-General's office, is president of the Association and Dr. John Ruhrhah of Baltimore is secretary and treasurer.

DECLINING SCOTTISH BIRTH RATE.—The recently published annual report of the registrar general for Scotland shows that between the middle of 1912 and the middle of 1913 the total population of Scotland decreased 12,945. Moreover, there was a decrease of 32,732 between 1911 and 1913. During the year 1913 the total number of living births in Scotland was 120,516, which was 2274 less than the number for 1912 and 5230 less than the mean of the preceding five years.

"A striking fact was that the registered births of the year 1913 were less than those of all previous years since 1873; a maximum number of 133,525 births was registered in 1903, and compared with this the present year was 13,000 short. Fifty-one per cent. of the children registered were male and 49% female. The birth rate for the year was 25.49 per 1000 of the esti-

mated population. Legitimate children accounted for 92.91%, and the illegitimate for 7.09%; the number of the latter was less than in all years since 1903, and the illegitimate rate was less than those of all years since 1908. There were 1175 more marriages in 1913 than in 1912, and 296 more than the mean of the numbers of the preceding five years (1908-1912); in fact, it was the largest number of marriages registered in Scotland in any year since the introduction of national registration. The marriages thus reached their highest and the births their lowest level in 1913; this is a fact of great significance in its bearing upon the decreased productivity of the Scottish people. The deaths for 1913 numbered 73,069, or 729 more than in the previous year; the death-rate was 15.45 per 1000 of the estimated population."

These figures, it is to be remembered, concern a period which was in no way affected by the present European War, and, therefore, indicate in times of peace a tendency towards steady decrease in birth rate comparable with that observed in France, England and the United States. The effect which the war may have upon this decline in the future cannot now be definitely prognosticated since there are theoretic reasons for exactly opposite effects between which it is probably impossible now to judge, since the ultimate social, political and biologic effects of the war cannot be surely appreciated until after its close.

BOSTON AND NEW ENGLAND.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.—It had been planned by the Boston Instructive District Nursing Association to institute on June 28 a course of training for nurses in the care of tuberculous patients, but there were so few applicants that this proposed course has been postponed for the season.

HARVARD MEDICAL ALUMNI OFFICERS.—The annual meeting of the Harvard Medical Alumni Association was held at Harvard Hall, Cambridge, on Commencement Day, June 24. Dr. Frederick C. Shattuck of Boston was elected president, Dr. James B. Ayer treasurer, and Dr. Arthur B. Emmons, 2d, secretary for the ensuing year.

The forty-fourth annual meeting and dinner of the Harvard Dental Alumni Association, held the same day at Young's Hotel, Boston, were attended by 216 members. The following officers were elected for the ensuing year: President, Harold deW. Cross, '96; secretary, Frank T. Taylor; treasurer, Charles T. Warner; executive committee, Frank T. Taylor, '90, William D. Squarebrigs, '98, Leroy M. S. Miner, '04.

PLANS FOR THE BRADY LABORATORY.—On June 27 it was announced at New Haven, Conn., that plans have been completed for the new Anthony

N. Brady laboratory, which is to be erected at an estimated cost of \$125,000, and the construction of which it is expected will be begun this summer.

The building will be erected on the grounds of the New Haven Hospital, on land owned by the university, on which it is proposed to put up the new medical school buildings. It will be of brick and stone in the Georgian style, rectangular in shape, approximately 50 feet by 150. It will be arranged on a unit plan, the classrooms to consist of three or four units and the working rooms for the instructors and technicians one or two units. It will be constructed so that the partitions can be removed to alter the size of rooms.

The construction will be fireproof and the floors will be of concrete. Large windows have been provided for every room. By an ingenious arrangement of trenches and conduits the pipes for plumbing, compressed air, electrical lines, etc., can be gotten at in case of alteration without tearing up the building.

It will be a three-story building with basement and attic. The basement will contain students' lockers and toilet rooms, a storage museum for the department of pathology, a machine room, janitor's room, rooms for small animals and the columbarium. The first floor will contain the teaching room for pathology, the autopsy room, receiving room and the internes' working laboratory.

The second floor will contain a teaching room for instruction in clinical microscopy, working rooms for the staff of the departments of surgery and obstetrics, students' research rooms, etc. The third floor will contain working rooms for the other departments. In addition to the janitor's room in the attic there will be a roof garden for small animals that need to be kept in the open air."

THE SECOND HARVARD SURGICAL UNIT.—In the issue of the JOURNAL for June 17 we published the personnel of the second Harvard surgical unit, which finally left Boston on June 25 and on June 26 sailed from New York aboard the steamer *Noordam*, under command of Dr. Edward H. Nichols. This unit has been assigned to a base hospital at Woolwich, England, for the three months from July 1 to October 1, where it will be followed by similar units from Columbia and Johns Hopkins. All the surgeons will receive temporary commissions in the British army. After October 1 members of the unit may continue their work in France.

BOSTON FLOATING HOSPITAL.—The Boston Floating Hospital began the twenty-second season of its work by a trip down the harbor on Wednesday, June 30, and plans have been made to continue these trips daily throughout the current summer. The staff of the hospital is essentially the same as that of previous years and includes the following physicians:—

Dr. Henry L. Bowditch, chief physician in

charge of the staff; Dr. James Herbert Young, Dr. Edwin T. Wyman and Dr. John W. Hammond. The auxiliary staff includes the following: Dr. Dana W. Drury, otologist; Dr. James S. Stone, surgeon; Dr. Beth Vincent, assistant surgeon; Dr. James B. Ayer, mental diseases; Dr. Edwin H. Place, contagious diseases; Dr. Robert G. Loring, ophthalmologist; Dr. William T. Councilman, pathologist; Dr. John Henry Bufford, dermatologist; Dr. Frederic W. Howe, director food laboratory.

Dr. Paul W. Emerson will again be house physician. The senior house officers are: Dr. M. Sehan, Infants' Hospital, Boston; Dr. Carl H. Laws, Boston, and Dr. Warren P. Sisson, Peter Bent Brigham Hospital; the junior house officers—Dr. J. Sumner Teter, Arlie Vernon Bock, Dr. C. N. Moore, all of Boston; senior externe, Dr. James W. Bruce, City Hospital, Louisville, Ky.; junior externe, Alton Goldbloom, Montreal; and the medical assistants, Dr. J. Aloysius Drooz, Albany, N. Y.; Samuel A. Cohen, Roxbury; and Burton E. Lovesey, Philadelphia.

Brenton R. Lutz is chief of the food laboratory; Alfred W. Bosworth, A.M., the biological chemist; and Garm Norbury, the bacteriologist.

It is earnestly to be hoped that this important and particularly picturesque medical charity may continue to be well supported by a generous public in spite of the financial conditions incident to the European War.



Massachusetts Medical Society.

PROCEEDINGS OF THE SOCIETY.

ANNUAL MEETING.

First Day, June 8, 1915.

Clinics and demonstrations were held during the morning at the principal hospitals in Boston.

The annual meeting of the supervisors was held in the foyer of the Copley-Plaza Hotel, Boston, at 11:30 o'clock.

The annual meeting of the council was held in the foyer, at 12 o'clock noon.

Meetings of the sections were held in the Copley-Plaza Hotel, in the afternoon. The sections were officered and papers presented according to the following program:

MEETING OF THE SECTION OF MEDICINE.

Foyer, Copley-Plaza Hotel.
2:30 o'clock.

Officers of the Section of Medicine:

Dr. Elliott P. Joslin, Boston, *Chairman*.
Dr. James H. Means, Boston, *Secretary*.

Symposium on Heart Disease.

1. The Use of Digitalis in the Various Forms of Cardiac Arrhythmias.—Dr. Henry A. Christian, Boston.

2. The Relation of the Abnormal Heart Beat to Prognosis.—Dr. Paul D. White, Boston.
 3. Treatment of Heart Disease.—Dr. F. C. Shattuck, Boston.
 Discussion.—Dr. John Sproul, Haverhill; Dr. Francis W. Palfrey, Boston; Dr. J. H. Pratt, Boston.
 Attendance, 120.

MEETING OF THE SECTION OF SURGERY.

State Dining-Room, Copley-Plaza Hotel.
 2.30 o'clock.

Officers of the Section of Surgery:

- Dr. Paul Thorndike, Boston, *Chairman*.
 Dr. Edward P. Richardson, Boston, *Secretary*.
 1. Demonstration of a method by which fragments of needles lodged in tissues near the surface of the body may be localized by means of magnetism.—Dr. George H. Monks, Boston.
 2. Acute Perforations of Ulcers of the Stomach and Duodenum.—Dr. W. E. Faulkner and Dr. I. J. Walker, Boston.
 3. Traumatic Perforations of the Duodenum.—Dr. David Cheever, Jr., Boston.
 4. Cholelithiasis: An Argument for Early Operation.—Dr. Joshua C. Hubbard, Boston.
 5. A Brief Consideration of Acute Pancreatitis, with Case Reports.—Dr. C. E. Purant, Haverhill.
 Discussion.—Dr. P. E. Truesdale, Fall River; Dr. D. F. Jones, Boston.
 Attendance, 140.

MEETING OF THE SECTION OF TUBERCULOSIS.

Ballroom, Copley-Plaza Hotel.
 2.30 o'clock.

Officers of the Section of Tuberculosis:

- Dr. Albert C. Getchell, Worcester, *Chairman*.
 Dr. John B. Hawes, 2d, Boston, *Secretary*.
 1. Non-tuberculous Cases at the State Sanatorium.—Dr. Elliott Washburn, Superintendent Rutland State Sanatorium.
 Discussion.—Dr. I. J. Clarke, Haverhill; Dr. C. C. MacCorison, Superintendent North Reading State Sanatorium; Dr. Charles E. Perry, Superintendent Hampshire County Sanatorium.
 2. Errors in Diagnosis in Chronic Diseases of the Lungs.—Dr. John B. Hawes, 2d, Boston.
 Discussion.—Dr. Allen G. Rice, Springfield; Dr. Frederick T. Lord, Boston; Dr. H. C. Clapp, Boston.
 3. What Constitutes Tuberculosis in Childhood.—Dr. John Lovett Morse, Boston.
 Discussion.—Dr. Walter C. Bailey, Boston; Dr. Cleaveland, Floyd, Boston; Dr. F. B. Talbot, Boston; Dr. H. D. Chadwick, Superintendent Westfield State Sanatorium.
 Attendance, 100.

Officers of the Sections for the ensuing year were elected by the Sections respectively as follows:

Section of Medicine: Chairman, Henry Jackson, Boston; Secretary, F. Gorham Brigham, Boston.

Section of Surgery: Chairman, C. E. Durant, Haverhill; Secretary, W. M. Boothby, Boston.

Section of Tuberculosis: Chairman, Albert C. Getchell, Worcester; Secretary, John B. Hawes, 2d, Boston.

The Shattuck Lecture was delivered in the foyer of the Copley-Plaza Hotel, in the evening, by Dr. Joel E. Goldthwait, of Boston, on "An Anatomic and Meehanistic Conception of Disease." (See BOSTON MEDICAL AND SURGICAL JOURNAL, June 17, 1915, page 881.)

At the close of the lecture there was an informal reception to the president and a popular concert in the ballroom, and refreshments were served, the attendance being 477.

Second Day, June 9, 1915.

The Society met at the Copley-Plaza Hotel for the exercises of the one hundred and thirty-fourth anniversary. The President, Dr. C. F. Withington, was in the chair, and about 130 Fellows were present during the morning.

The minutes of the last meeting were read and accepted.

The secretary announced that during the past year the Society had lost by death 52 Fellows, by resignation 25, by deprivation of the privileges of fellowship 48, making a total loss of 125. The Society had gained 203 Fellows as follows: Restoration by Council, 9; readmitted by Censors, 2; new Fellows, 192, a net gain of 78, making the total membership, 3582.

The president introduced Dr. Kate Campbell Mead, of Middletown, delegate from the Connecticut State Medical Society. A motion thanking thirteen Fellows for their unselfish and efficient services as experts in the defence of suits for malpractice against Fellows of the Society, passed by the Council on the previous day, was read by the secretary and voted unanimously.

Papers were read according to this program, being devoted to the following topics, viewed from the standpoint of Public Health and Preventive Medicine. Each speaker was limited to ten minutes.

1. The Work and Aims of the State Department of Health.—Dr. Allan J. McLaughlin, Boston.
2. Pneumonia.—Dr. Frederick T. Lord, Boston.
3. Infant Mortality.—Dr. John Lovett Morse, Boston.
4. Typhoid Fever.—Dr. M. W. Richardson, Jamaica Plain.
5. Preventable Heart Disease.—Dr. Roger I. Lee, Cambridge.
6. Tuberculosis.—Dr. Arthur K. Stone, Boston.
7. Syphilis.—Dr. Abner Post, Boston.
8. Contagious Diseases.—Dr. Eugene R. Kelley, Boston.

The Annual Discourse was delivered at twelve o'clock by Dr. Everett A. Bates, of Springfield, on "Some Perplexities in Modern Medicine." (See BOSTON MEDICAL AND SURGICAL JOURNAL, June 10, 1915, page 843.)

In the afternoon there was a combined meeting of the Sections of Medicine and Surgery in the Surgical Amphitheatre, Boston City Hospital, under the chairmanship of Dr. Elliott P. Joslin and the secretaryship of Dr. James H. Means, when the following program was presented:

COMBINED MEETING.

Symposium on Empyema.

1. The Medical Aspects of Empyema and Pulmonary Abscess.—Dr. F. T. Lord, Boston.
2. The Recognition of Pleural Disorders by X-rays, with Especial Reference to Empyema.—Dr. Percy Brown, Boston.

3. The Pneumodynamics of the Treatment of Emphyema.—Dr. F. C. Cotton, Boston.

4. The Surgical Treatment of Chronic Emphyema.—Dr. F. B. Lund, Boston.

5. Lung Abscess and Bronchiectasis from a Surgical Point of View; End Results of Acute and Chronic Emphyema.—Dr. Wyman Whittemore, Boston.

Discussion.—Dr. George G. Sears, Boston; Dr. John Homans, Boston; Dr. James S. Stone, Boston; Dr. Frank L. Richardson, Boston.

Attendance, 140.

The Annual Dinner was served in the ballroom of the Copley-Plaza Hotel, in the evening, to 763 members and guests. The president made a short address and felicitously introduced the following speakers: His Honor Grafton D. Cushing, Lieutenant-Governor of Massachusetts; The Very Reverend Edmund S. Rousmaniere, Dean of the Cathedral Church of St. Paul, Boston; Mr. Charles H. Grandgent, Professor of Romance Languages in Harvard University; and Former President and Professor William H. Taft, of New Haven.

Adjourned at 11 p.m.

WALTER L. BURRAGE, *Secretary.*

ADMISSIONS REPORTED FROM JUNE 11, 1914, TO JUNE 9, 1915.

Year of Admission.	Name	Residence.	Medical College.
1914 Ahlstrom, Hjalmar, Quincy		12	
1914 Allison, Carl Edwin, Wakefield		12	
1915 Anderson, Victor Vance, Cambridge		37	
1914 Andrews, Benjamin Franklin, Worcester		12	
1915 Arey, Harold Carleton, Worcester		5	
1915 Atwood, Blanche Louise, Worcester		12	
1915 Austin, James Cornelius, Spencer		7	
1914 Ayers, Charles Elton, South Boston		12	
1915 Baggett, Elmer Stanley, Roslindale		12	
1914 Baldwin, Edith Elizabeth, Springfield		33	
1914 Barney, Willis Oliver, Boston		12	
1914 Baxter, Clarence Pennell, Topsfield		12	
1914 Bell, Conrad, Waltham		11	
1914 Bell, Richard Dana, Somerville		11	
1911 Berry, Charles Francis, Boston		7	
1915 Blake, Francis Gilman, Roxbury		11	
1915 Blake, James Eddy, Roslindale		17	
1915 Boehm, Julius Benjamin, Boston		6	
1914 Bonelli, Raymond Peter, Boston		12	
1914 Boyd, Francis Peter, Springfield		12	
1915 Bowen, Alfred Preston, Lynn		11	
1915 Brindamour, Joseph Edmund, Holyoke		38	
1914 Brown, Herbert Rutherford, Jamaica Plain		11	
1914 Buck, Clifton Leon, Danvers		12	
1914 Buckley, Daniel Joseph, Arlington		12	
1915 Burns, Walter Lynn, Lynn		11	
1915 Coines, Richard John Ridgway, Boston		12	
1915 Carpenter, Robert John, North Adams		12	
1911 Chamberlin, Harold Augustus, Worcester		12	
1915 Chandler, Harold Beckles, West Newton		11	
1915 Chase, Joseph Jr., Weymouth		10	
1914 Cheever, Austin Walter, Mattapan		11	
1915 Chronquist, Alfred Peter, Danvers		11	
1915 Clarke, Mary Ella, Malden		12	
1915 Clarke, Willis Earle, Malden		12	
1914 Coates, Edward Augustus, Jr., Winthrop		12	
1911 Cook, James Henry, Braintree		12	
1911 Cook, John William, Mansfield		12	
1915 Courie, Wadie Fadoul, Boston		43	
1911 Coursey, Frank Rudolph, Boston		35	
1914 Cox, Oscar Francis Jr., Boston		12	
1914 Crabtree, Ernest Granville, Boston		11	
1914 Creamer, William Henry, Fall River		11	
1914 Cronin, Herbert Joseph, Cambridge		11	
1914 Cunningham, Joseph Henry, Cambridge		11	
Year of Admission.	Name	Residence.	Medical College.
1914 Cunningham, Thomas Edw., Jr., Cambridge		11	
1914 Curran, John Francis, Worcester		12	
1914 Cutler, Myron Fred, Southbridge		12	
1915 Cutler, Raymond William, Worcester		12	
1914 Davis, Henry Levi, Lynn		12	
1914 Dowling, John Joseph, Boston		11	
1914 Dunham, Adeline Frances, Cambridge		12	
1914 Eaton, Henry Douglas, Stockbridge		17	
1915 Eidam, Carl Hermann, Lawrence		43	
1915 Ellison, Daniel James, Lowell		12	
1915 Emery, William Edward, Beverly		14	
1915 Emmons, Henry Manning, Jamaica Plain		10	
1915 Fenton, Alfred Archibald, Walpole		22	
1914 Finnerty, Charles William, Somerville		7	
1914 Fleet, William Ernest, Cambridge		12	
1914 Fleming, Edwin Bahn, Medford		20	
1914 Forster, John Ferguson Cooke, Holyoke		24	
1915 Fraiser, Irving William, Worcester		12	
1915 Fraser, Somers, Boston		11	
1914 Gaylord, James Frederick, Springfield		14	
1914 Godfrey, Henry White, Auburndale		11	
1915 Gosline, Harold Inman, Hathorne		11	
1915 Grady, Thomas Henry, Clinton		8	
1915 Greene, Edward Chace, Northampton		13	
1915 Greene, Jeremiah Augustine, Worcester		11	
1915 Grey, Ernest George, Roxbury		6	
1915 Grochinsky, Herman, New Bedford		9	
1914 Gunter, Fred Clarke, Somerville		12	
1914 Gwinnett, Alfred Weston, Brighton		12	
1914 Gwynne, Samuel Carlton, Worcester		12	
1914 Haley, William Thomas, Boston		12	
1914 Hanscom, Ridgely Fernald, Boston		5	
1915 Harkins, William Joseph, Jr., Quincy		22	
1914 Haskins, Frank Eugene, Boston		12	
1914 Hayes, William Francis, Beverly		12	
1915 Hiltpold, Werner, Easthampton		22	
1914 Holzer, William Francis, Worcester		14	
1915 Hoyt, Edward Malcolm, Georgetown		11	
1914 Hurley, Daniel Joseph, Charlestown		11	
1915 Jackson, Roy Chase, Worcester		22	
1915 Jacoby, Rudolph Jr., Weymouth		10	
1912 Johnson, Herbert Lester, Brookline		12	
1915 Horrax, Gilbert, Roxbury		6	
1914 Kelley, Edward Joseph, Watertown		12	
1915 Kerrigan, John Joseph, Fall River		7	
1914 Killam, Franklin Harrison, Medford		12	
1914 King, George Elbert, Monson		22	
1914 Lane, Clayton Rogers, Fitchburg		22	
1915 Larabee, Frank Walton, Boston		14	
1914 Lawley, Brace Irving, Arlington		12	
1914 Leary, Alfred James, Newton		12	
1914 Leavitt, Pierce Henry, Boston		11	
1914 Lee, Wesley Terence, Somerville		10	
1914 Lewis, Seth Ames, Springfield		10	
1915 Limauro, Louis Herbert, Lynn		33	
1915 Lindsay, John Crandall, Tewksbury		11	
1914 Lyman, Henry, Boston		11	
1914 Macdonald, Frederick Livingston, Waltham		22	
1915 Maedougall, Duncan, Haverhill		10	
1914 MacKay, William Henry, Worcester		12	
1915 Mackenzie, Roland Chester, Waltham		12	
1914 MacKnight, William Frank, Boston		11	
1914 MacLeod, Emily Clark, Boston		12	
1914 MacLeod, John Malcolm, Quincy, readmitted		24	
1915 Mains, Herbert Llewellyn, Danvers		22	
1914 Mason, Broadstreet Henry, Worcester		5	
1915 McIntosh, Jennie Grace, Worcester		12	
1914 McIver, George Albert, Worcester		22	
1915 McKechnie, Frederick Joseph, Springfield		11	
1914 McLaughlin, Allan Joseph, Boston		39	
1914 McLaughlin, Arthur Otis, Haverhill		12	
1915 McLellan, William Edwin, Lynn		32	
1914 McWeeny, Bernadette Marie, Boston		12	
1914 Merrill, Adelbert Samuel, Boston		12	
1915 Merrill, Everett Albert, Lynn		12	
1915 Meserve, Edwin Alonzo, Watertown		11	
1914 Metcalf, Richard, Boston		12	
1914 Meyer, Edward James, Somerville		40	
1915 Mills, Alfred Ewing, Somerville		10	

Year of Admission.	Name	Residence.	Medical College.
1914	Monahan, John Ambrose, Clifton	.....	12
1915	Moore, George Andrew, Palmer	.....	43
1914	Moore, Mary Teresa, Boston	.....	12
1914	Moriarty, Patrick Maurice, Springfield	.....	4
1914	Morse, Charles Frederick, Boston, readmitted	22	
1914	Mosher, Marshall James, Waltham	.....	22
1914	Messman, George, Fitchburg	.....	22
1915	Murphy, Daniel Francis, Beverly	.....	12
1914	Nathanson, Elias Sant, Lynn	.....	32
1914	Newton, Edward Roswell, Somerville	.....	11
1915	Niles, Edward Harry, Danvers	.....	14
1914	Nishan, Hampartsumian Mignerditch, Boston	41	
1915	Noble, Ernest Corser, Mattapan	.....	24
1914	Normand, Jean Napoleon, Fall River	.....	7
1914	Nute, Albert James, Boston	.....	11
1914	O'Keefe, Edward Scott, Lynn	.....	11
1914	O'Rourke, Edward James, Cambridge	.....	12
1914	Parker, Raymond Brewer, Reading	.....	10
1914	Partridge, Thomas Jefferson, Cambridge	.....	10
1915	Pavlidis, Socrates Yakovas, Haverhill	.....	12
1914	Pearce, George Girdwood, New Bedford	.....	17
1914	Perkins, Franklin Haskins, Wrentham	.....	12
1914	Perkins, Roy Stanley, Salem	.....	5
1915	Poirier, George Henri, Boston	.....	12
1914	Provost, Raoul Gaston, Taunton	.....	22
1914	Riemer, Hugo Bruno Charles, Norwood	.....	11
1914	Robertson, Jessie Wilhelmine, Cambridge	.....	12
1914	Robins, Samuel Alexander, Lynn	.....	12
1915	Rochford, Grace Elizabeth, Roxbury	.....	12
1914	Rochford, Richard Augustine, South Boston	11	
1914	Roderick, Charles Elvin, West Somerville	.....	12
1914	Rodger, James Yeams, Lowell	.....	10
1914	Rogers, John Andrews, Lowell	.....	12
1914	Root, Raymond Richmond, Georgetown	.....	11
1914	Roumseville, Wilfrid Ellsworth, Attleborough	11	
1914	Ryder, Walter Irenaeus, South Boston	.....	12
1915	Safford, Moses Victor, Jamaica Plain	.....	5
1915	Segall, Samuel Kelman, New Bedford	.....	12
1914	Sennott, John Ralph, Cambridge	.....	11
1915	Shaw, Francis, Somerville	.....	11
1914	Simmons, Edward Burnside, Worcester	.....	12
1915	Simonds, Frederick Artemas, Cambridge	.....	12
1915	Smillie, Wilson George, Jamaica Plain	.....	11
1915	Smith, Ernest Elmer, Worcester	.....	20
1914	Smith, William David, Boston	.....	11
1914	Smith, William Francis, Malden	.....	12
1915	Solomon, Harry Caesar, Boston	.....	11
1914	Sparks, Ernest Elliot, Cochituate	.....	22
1914	Stokes, Leroy Tyler, Haverhill	.....	14
1915	Sullivan, Elizabeth Ann, Framingham	.....	12
1914	Sullivan, Francis Augustus, Cambridge	.....	12
1914	Sylvester, Nathan Rowland, Jr., W. Somerville	10	
1915	Taveira, Arthur Joaquin, New Bedford	.....	32
1914	Ten Broeck, Carl, Boston	.....	11
1914	Thom, Douglas Armour, Monson	.....	22
1914	Thompson, Charles Arthur, Newton Highlands	.....	7
1915	Thompson, John Stephen, Cambridge	.....	4
1915	Tiani, Bernardo, Lawrence	.....	42
1915	Tibbets, Guy Daniel, Arlington	.....	12
1914	Towle, Clarence Clarke, Somerville	.....	20
1915	Towne, Edward Bancroft, Roxbury	.....	11
1915	Trull, Alfred Chase, Haverhill	.....	32
1915	Underhill, Samuel Graham, Lynn	.....	11
1914	Wainshel, Percy William, Lynn	.....	12
1915	Webber, Wolpert Gerson, Needham	.....	11
1914	White, Everett, Lynn	.....	7
1914	White, George Arthur, Cambridge	.....	12
1914	Wickham, Thomas William, South Boston	11	
1914	Wilkins, George Arthur, Revere	.....	8
1914	Young, Edward Wallace, New Bedford	.....	12
Total, 192+2 = 194.			
4 University of Georgetown, Medical Department.			
5 Medical School of Maine.			
6 Medical Department of the Johns Hopkins University.			
7 College of Physicians and Surgeons, Baltimore, Md.			
8 Baltimore Medical College.			
9 Long Island College Hospital.			
10 Boston University School of Medicine.			
11 Harvard University Medical School.			
12 Tufts College Medical School.			
13 University of Michigan, Department of Medicine and Surgery.			
14 Dartmouth Medical School.			
15 Columbia University College of Physicians and Surgeons.			
20 Jefferson Medical College.			
21 University of Vermont, Medical Department.			
23 McGill University, Medical Department.			
32 University of Maryland, School of Medicine.			
33 Woman's Medical College of Pennsylvania.			
35 Medical College of Virginia.			
37 Hospital College of Medicine, Louisville, Ky.			
38 Laval University School of Medicine, Canada.			
39 Detroit College of Medicine.			
40 Dalhousie University Medical School, N. S.			
41 American School of Medicine of Syrian Protestant College, Beirut, Syria.			
42 Regia Universita degli Studi, Naples, Italy.			
43 College of Physicians and Surgeons, Boston.			
OFFICERS OF THE MASSACHUSETTS MEDICAL SOCIETY.			
Chosen by the Council June 8, 1915.			
Charles F. Withington, Boston, President.			
Edmond F. Cody, New Bedford, Vice-President.			
Walter L. Burrage, Boston, Secretary.			
Edward M. Buckingham, Boston, Treasurer.			
Edwin H. Brigham, Brookline, Librarian.			
STANDING COMMITTEES.			
Of Arrangements.—J. D. Barney, E. L. Young, Jr., J. H. Young, J. L. Huntington, R. H. Miller, C. H. Lawrence, Jr.			
On Publications and Scientific Papers.—G. B. Shattuck, E. W. Taylor, R. B. Osgood, J. S. Stone, F. T. Lord.			
On Membership and Finance.—C. M. Green, A. Coolidge, Jr., Samuel Crowell, F. W. Taylor, Alfred Worcester.			
On Ethics and Discipline.—J. A. Gage, J. W. Bartol, Henry Jackson, G. deN. Hough, S. B. Woodward.			
On Medical Education and Medical Diplomas.—H. C. Ernst, C. F. Painter, H. W. Newhall, J. F. Burnham, C. Frothingham, Jr.			
On State and National Legislation.—C. F. Withington, F. G. Wheatley, G. W. Gay, A. K. Stone, W. P. Bowers.			
On Public Health.—M. J. Rosenau, W. I. Clark, Annie L. Hamilton, E. H. Bigelow, R. I. Lee.			
Officers of the general society elected by the District Societies at their annual meetings in April and May, 1915, for the ensuing year.			
Councillors, Censors, and Commissioners of Trials assumed office June 8, 1915.			
VICE-PRESIDENTS (EX-OFFICIO).			
PRESIDENTS OF DISTRICT SOCIETIES.			
Arranged according to seniority of fellowship in the Massachusetts Medical Society.)			
J. J. McCarty, Lowell.....Middlesex North			
F. C. Granger, Randolph.....Norfolk South			
M. V. Pierce, Milton.....Norfolk			
W. D. Swan, Cambridge.....Middlesex South			
R. W. Greene, Worcester.....Worcester			
Paul Thorndike, Boston.....Suffolk			
N. C. King, Campello, Brockton.....Plymouth			
J. B. Donnelly, West Gardner.....Worcester North			
W. R. Weiser, Springfield.....Hampden			
O. W. Cobb, Easthampton.....Hampshire			
E. C. Fish, Melrose.....Middlesex East			

E. H. Howard, Pittsfield.....	Berkshire	W. H. Allen, Mansfield.....	Bristol North
V. A. Reed, Methuen.....	Essex North	J. E. Urquhart, Ashfield.....	Franklin
C. A. Bonney, Jr., New Bedford.....	Bristol South	G. M. Kline, Hathorne, Danvers.....	Essex South
J. P. Niekerson, West Harwich.....	Barnstable		

DEATHS REPORTED FROM JUNE 11, 1914, TO JUNE 9, 1915.

Admitted	Name	Place of Death	Date of Death	Age.
1860 Adams, James Forster Alleyne	Pittsfield.....	July 27, 1914.....	70	
1897 Amadon, Alfred Mason	Saranac Lake, N. Y.....	Mar. 6, 1915.....	48	
1896 Baker, Chester Monroe	Iyannis.....	Dec. 12, 1914.....	39	
1872 Baker, William Henry	Waltham.....	Nov. 26, 1914.....	69	
1885 Baldwin, Henry Cutler	Boston.....	Feb. 25, 1915.....	55	
1879 Baylies, Andrew	Worcester.....	July 7, 1914.....	75	
1900 Bontelle, Harry Clifton	Danvers.....	Jan. 24, 1915.....	39	
1896 Brewster, James Bartlett	Plymouth.....	Nov. 7, 1914.....	72	
1896 Bullock, George Dexter	Weymouth.....	Dec. 6, 1914.....	55	
1881 Carolin, William Terence	Lowell.....	Nov. 21, 1914.....	62	
1873 Chandler, Luther Graves	Townsend.....	Mar. 1, 1915.....	70	
1890 Clark, Caleb Wakefield	Melrose Highlands.....	June 13, 1914.....	60	
1867 Cogswell, Edward Russell	Cambridge.....	Dec. 22, 1914.....	73	
1904 Coolidge, Frederick Shurtleff	New York.....	May 14, 1915.....	49	
1872 Davison, Archibald Thompson	Cambridge.....	Sept. 19, 1914.....	70	
1862 Derby, Hasket	Falmouth Foreside, Me.....	Aug. 21, 1914.....	79	
1899 Downey, William Henry	Taunton.....	Oct. 1, 1914.....	42	
1880 Dresser, George	Chicopee.....	May 16, 1914.....	76	
1883 Ellis, Dean Samuel	Worcester.....	June 30, 1914.....	57	
1884 Field, James Brainerd	Lowell.....	Apr. 15, 1915.....	57	
1862 Fisher, Theodore Willis	Waverley.....	Oct. 10, 1914.....	77	
1857 Flint, Omar Alpha	Pract....	Feb. 16, 1915.....	71	
1864 Gavin, Michael Freeborn	South Boston.....	May 20, 1915.....	71	
1902 Gibson, Robert Francis	Hill, N. H.....	Aug. 15, 1914.....	40	
1878 Haven, Henry Ceeb	Stockbridge.....	Feb. 19, 1915.....	62	
1869 Hayden, David Hyslop	Lynn.....	Feb. 21, 1915.....	76	
1914 Holmes, Louise Dodson	Springfield.....	Sept. 10, 1914.....	47	
1891 Hogan, John Augustus	Roxbury.....	Nov. 11, 1914.....	50	
1886 Howe, James Sullivan	Brookline.....	Nov. 21, 1914.....	56	
1884 Kelley, Joseph Henry	Worcester.....	Nov. 10, 1914.....	52	
1874 Kelley, Seth Wight	Woburn.....	May 5, 1915.....	66	
1907 Kelly, William Dugan	Boston.....	Feb. 8, 1915.....	34	
1865 Langmaid, Samuel Wood	Brookline.....	Feb. 3, 1915.....	77	
1865 MacDonald, Archibald Elexis	Jamaica Plain.....	Apr. 27, 1915.....	87	
1908 Mann, William Orris	Boston.....	April 9, 1915.....	45	
1906 McAllester, John Joseph Hector	New Bedford.....	Apr. 16, 1915.....	37	
1895 Mohegan, Daniel Joseph	Taunton.....	April 21, 1915.....	46	
1884 Mooney, Philip	Gloucester.....	Sept. 27, 1914.....	50	
1889 Mumford, James Gregory	Clifton Springs, N. Y.....	Oct. 18, 1914.....	50	
1872 Neilson, William	North Leominster.....	May 14, 1915.....	75	
1890 Peirce, Amos Hagar	West Newbury.....	Feb. 9, 1915.....	54	
1886 Pomeroy, William Henry	Springfield.....	June 10, 1914.....	56	
1882 Quimby, Sumner Ferdinand	Gloucester.....	July 10, 1914.....	62	
1863 Ransom, Nathaniel Morton	Somerville.....	Jan. 8, 1915.....	84	
1896 Saville, Sumner Carruth	Cambridge.....	May 27, 1915.....	48	
1906 Scamell, James Joseph	South Boston.....	Feb. 19, 1915.....	40	
1882 Thayer, George Dickinson	Northampton.....	Mar. 16, 1915.....	57	
1907 Watts, Joseph Palmer	Wakefield.....	Feb. 18, 1915.....	32	
1887 Webber, Amos Paterson	New Bedford.....	Mar. 20, 1915.....	55	
1872 White, Emory Lincoln	Somerville.....	Apr. 29, 1915.....	66	
1846 White, Robert	Cambridge.....	Sept. 27, 1914.....	91	
1903 Wood, Henry Walton	Philadelphia, Pa.....	Jan. 12, 1915.....	33	

Total, 52.

COUNCILORS, 1915-1916.

Note.—The initials M. N. C. following the name of a councilor indicate that he is a member of the Nominating Committee. V.P. indicates that the member is a councilor by virtue of his office of president of a district society, and so vice-president of the general society. C. indicates that he is chairman of a standing Committee.

BARNSTABLE.

J. P. Niekerson, V.P., West Harwich.
E. E. Hawes, M.N.C., Hyannis.
C. W. Milliken, Barnstable.

BERKSHIRE.

E. H. Howard, V.P., Pittsfield.

Henry Colt, Pittsfield.

L. A. Jones, M.N.C., North Adams.

E. A. Kennedy, Great Barrington.

J. H. Riley, North Adams.

BRISTOL NORTH.

W. H. Allen, V.P., Mansfield.
Summer Coolidge, Middleborough.
R. D. Dean, Taunton.
F. A. Hubbard, M.N.C., Taunton.

BRISTOL SOUTH.

C. A. Bonney, Jr., V.P., New Bedford.
E. F. Cody, V.P., New Bedford.
C. F. Connor, New Bedford.
W. A. Dolan, Fall River.

R. W. Jackson, Fall River.

A. H. Mandell, New Bedford.

H. G. Willbur, M.N.C., Fall River.

ESSEX NORTH.

V. A. Reed, V.P., Methuen.
R. V. Bakelite, Methuen.
J. E. Bryant, Haverhill.

ESSEX NORTH (Continued)

Hugh Donahue, Haverhill.
 T. R. Healy, Newburyport.
 G. E. Kurth, Lawrence.
 E. H. Noyes, Newburyport.
 H. P. Robinson, Amesbury.
 F. W. Snow, M.N.C., Newburyport.

ESSEX SOUTH,

G. M. Kline, V-P., Hathorne.
 C. H. Bangs, Lynn.
 R. E. Bicknell, Swampscott.
 N. P. Breed, Lynn.
 J. F. Donaldson, Salem.
 D. J. Finnegan, Gloucester.
 H. K. Foster, Peabody.
 P. P. Johnson, Beverly.
 Butler Metzger, Lynn.
 P. P. Moore, Gloucester.
 J. F. O'Shea, M.N.C., Lynn.
 H. E. Sears, Beverly.

FRANKLIN,

J. E. Urquhart, V-P., Ashfield.
 G. P. Twitchell, M.N.C., Greenfield.
 N. P. Wood, Northfield.

HAMPDEN,

W. R. Weiser, V-P., Springfield.
 T. S. Bacon, Springfield.
 E. P. Bagg, Holyoke.
 J. M. Birne, Springfield.
 R. S. Benner, Springfield.
 A. L. Cooley, Chicopee Falls.
 E. L. Davis, Springfield.
 G. L. Henderson, Holyoke.
 M. B. Hodskins, Palmer.
 S. A. Mahoney, M.N.C., Holyoke.
 A. G. Rice, Springfield.
 H. W. VanAllen, Springfield.

HAMPSHIRE,

O. W. Cobb, V-P., Easthampton.
 J. S. Hitchcock, Northampton.
 P. A. Hindnut, Chesterfield.
 F. H. Smith, M.N.C., Hadley.

MIDDLESEX EAST,

E. C. Fish, V-P., Melrose.
 C. J. Allen, M.N.C., Winchester.
 E. S. Jack, Melrose.
 W. H. Keleher, Woburn.
 E. D. Richmond, Reading.

MIDDLESEX NORTH

J. J. McCarty, V-P., Lowell.
 W. G. Eaton, Lowell.
 J. A. Gage, C., Lowell.
 G. O. Lavalee, Lowell.
 W. P. Lawler, Lowell.
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Correspondence.

THE AMERICAN WOMEN'S WAR HOSPITAL.

PAIGNTON, SOUTH DEVON, ENGLAND, JUNE 15, 1915

Mr. Editor: Dr. Howard and I arrived here without any misadventures and found a well-appointed hospital running to full capacity nearly all the time. I found on my arrival that I had been promoted to Director of Unit D, so I am stationed here indefinitely now and shall not go to France after all. The hospital is beautifully situated in large, well-kept grounds so there is ample space for the patients to exercise in, and they all seem to do well in the sunlight and fine clean air which we have. We are only a few moments' walk from the water, Tor Bay, and from the hospital can see Torquay on the left and Brixham on the right. We get some very interesting cases and in fact receive them quite quickly from the front, usually in lots of from 50 to 100. They are sent across the Channel in a hospital ship to Southampton and are then transferred to a well-equipped hospital train and distributed along the line to the various hospitals. The cases are of various types—some medical cases, mostly those who have been "gassed," and incidentally "gassing" certainly does play the mischief with the men, as it apparently gives them a very acute and painful form of bronchitis, and they have great difficulty in breathing and in some instances their eyes are very severely affected. Nearly all of the wounds are infected, but after the bullets and pieces of shrapnel are removed they clear up very rapidly and the way in which septic compound fractures clear up is really marvellous. I have at present several very interesting cases on my wards, one in particular, a man who was shot by a shrapnel bullet through the lower end of the sacrum. The bullet dodged the rectum and landed in the bladder. There are no symptoms save a small stream of urination, when standing, and some pain. When he lies down the stream is all right and there is no pain save at the very end. I am getting some good x-rays on him and am waiting for a cystoscope to arrive from London before I operate on him. We have also several cases of nerve injury, so we see the unusual here. I am sending you one of the reports on the first 1000 cases in which you may be interested.

Sincerely yours,

D. P. PENHALLOW, M.D.

[The report which our correspondent encloses presents an interesting analysis of the first 1000 cases treated at the Hospital. Of these, 41% had perforating, and 59% non-perforating wounds. There were only three deaths.—EDITOR.]

THE DEATH OF MADAME DEPAGE.

BRUSSELS, JUNE, 1915.

My dear Colleagues: I have received from a large number of you and notably from the committees which you have formed, the most touching tributes of sympathy and of condolence for the catastrophe of the *Lusitania* in which my wife lost her life.

These tributes are so numerous and so unanimous, that I wish to express to you publicly my appreciation of them. I address myself to you, my dear colleagues, as the authorized representatives of the humanitarian sentiments which so honor the great American nation.

You all know, as I wrote to you when my wife left for America, for what purpose she accepted the mission which the Red Cross confided to her. In the presence of the unexampled miseries of which we have been the prey, she had resolved to solicit your fraternal assistance. You gave her that largely. I should

say "joyously" if the word could be pronounced in these times.

The letters my wife wrote to me in the course of her mission told me how you worked for her and revealed to me the extent and generosity of your projects for our wounded. Your hearts were open to our appeal; your country did not wait to come to our assistance. Powerful America wished to take under her protection our little people, tortured but always valiant.

My great sorrow does not permit me to reply as I wish I might to each one of you. Only to-day have I been able to measure,—thanks to the letter of your compatriot—Dr. Houghton—the extent of the gratitude I owe, to him first for having risked his life in trying to save that of my wife, and after that to you all for your devoted help in our common work.

Under the strain of my emotion, the sentiment of thankfulness is the only one to which at this moment, I am able to give expression. Permit me to do so with all my heart.

A. DEPAGE.

[The above is a translation of a letter sent by Dr. Depage to Dr. Richard H. Harte, of Philadelphia, with the request that it be published in acknowledgment of the many letters which he has received from America since the tragic death of Madame Depage.—EDITOR.]

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JUNE 26, 1915.

CONTRIBUTIONS.

Dr. Emery R. Hayhurst, Columbus, Ohio,	\$ 5.00
Benton County Medical Society, Rogers, Ark.,	5.00

Receipts for the week ending June 26th,	\$ 10.00
Previously reported receipts,	7447.00

Total Receipts,	\$7457.00
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Previously reported disbursements:	
1625 standard boxes of food @ \$2.20,	\$3575.00
1274 standard boxes of food @ \$2.30,	2930.20
553 standard boxes of food @ \$2.28,	804.84

Total disbursements,	\$7310.04
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Balance,	\$146.96
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F. F. SIMPSON, M.D., *Treasurer,*
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

APPOINTMENTS.

NEW YORK POST-GRADUATE MEDICAL SCHOOL.—Dr. Edward J. Morrell has been appointed director of the N. Y. Post-Graduate Medical School and Hospital in succession to Dr. Jonathan Wright, who has resigned. Dr. Morris S. Fine has been appointed adjunct professor of pathologic chemistry, Dr. Richard M. Taylor, adjunct professor of pathology and Dr. Paul A. Schule, lecturer in bacteriology.

BOOKS AND PAMPHLETS RECEIVED.

The Practical Medicine Series, Vol. III, The Eye Ear, Nose and Throat. The Year Book Publishers.

Occupational Affections of the Skin, by R. Prosser White, M.D. Paul B. Hoeber, 1915.

What Every Mother Should Know, by Charles G. Kerley, M.D. Paul B. Hoeber, 1915.

War Surgery, by Edward DeLorme. Paul B. Hoeber, 1915.

RECENT DEATHS.

DR. AUBREY H. FITCH, who died on June 25 at Brighton, Mass., was born at Balie, N. S., on 1868. He received a degree in veterinary medicine from the University of Toronto and has practiced in Boston for many years. He is survived by his widow and by two daughters.

DR. SERAPH FRISSELL, who died of uremia on June 20 at Dalton, Mass., was born in Peru, on August 20, 1840. After graduating from Mt. Holyoke Seminary in 1869, she began the study of medicine in 1872 at the University of Michigan from which she received the degree of M.D. in 1875. In 1876 she settled at Pittsfield, Mass., and in 1884 removed to Springfield, where she continued active in the practise of her profession until a few years ago. In 1877 she was elected an honorary member of the Berkshire County Medical Society and in 1885 was admitted a member of The Massachusetts Medical Society and Hampden County Medical Society, but had not been a member of late years. During 1890 and 1891 she was resident physician and lecturer on physiology and hygiene at Mt. Holyoke College. She was unmarried.

DR. ALBERT WILLIAM HANCOCK, of Lawrence, Mass., was drowned while bathing at Salisbury Beach on June 18, 1915. He was born in Antiqua, W. I., May 5, 1877, and was a graduate of the Harvard Medical School in the class of 1904. He was a fellow of the Massachusetts Medical Society, a member of the American Medical Association and of the Lawrence Medical Club. He is survived by his widow and one child.

DR. HOWARD MARSH, who died on June 25 at Cambridge, England, was born at Homersfield, Suffolk, England, in 1839. He was master of Downing College and professor of surgery at the University of Cambridge. He was a corresponding member of the New York Orthopedic Society, a Bradshaw lecturer in the Royal College of Surgeons of England and President of the Clinical Society of London. He was twice married and is survived by his second wife.

DR. FRANCIS TEMM, who died on June 27 at St. Louis was born in 1866. He was instructor in gynecology at the medical department of the University of St. Louis.

DR. SAMUEL BALDWIN WARD, who died on June 3 at Albany, N. Y., was born in 1842. He received the degree of A.B. from Columbia University in 1861 and that of M.D. in 1864 from Georgetown University. In 1867 he became curator of the medical museum of Columbia University and professor of anatomy at the Woman's Medical College of the New York Infirmary. In 1870 he became professor of surgery at the same institution and in 1876, professor of surgical pathology at the Albany Medical College. In 1884 he became dean of this college and its professor of the theory and practise of medicine.

DR. CHARLES F. WOODRUFF, who died on June 13 at New Rochelle, N. Y., was born in 1850. He entered the United States Navy as a surgeon in 1886, but in 1887 resigned and entered the army with the same grade. He rose to the rank of lieutenant colonel and served as chief surgeon of brigade on the staff of General Merritt in the Philippine campaign. He also travelled extensively as sanitary inspector for the United States of foreign army posts. He was the author of "The Effect of Tropical Light on White Men" and "Expansion of the Races."

The Boston Medical and Surgical Journal

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- THE SURGICAL TREATMENT OF CANCER OF THE CERVIX UTERI. By Farrar Cobb, M.D., Boston.

- INOPERABLE UTERINE CARCINOMA. A METHOD OF APPLYING HEAT IN ITS TREATMENT. By J. F. Percy, M.D., Galesburg, Ill.

- A CASE OF PYELONEPHRITIS, COMPLICATED BY ADENO-CARCINOMA AND CHYLOMURIA. By Elizabeth T. Gray, M.D., Boston.

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Address.

THE NEWER VIEWS OF "CANCER," AND THEIR PRESENT RELATION TO THE "RESPONSIBILITY" OF THE PRACTITIONER.*

BY EDWARD REYNOLDS, M.D., BOSTON.

THE last few years have witnessed the appearance of a widespread and general popular interest in "Cancer" as a public health question. Until the outbreak of the present war this movement was quite as active in the various European states, notably England and Germany, as in the United States and Japan. There is, in effect, a world-wide interest in this question. In the last few years there have sprung up in the United States alone nearly sixty organizations which are in one way or another devoting their labors to the solution of the cancer problem, and for the last two years there has been a national association, the American Society for the Control of Cancer, which has been endorsed by all the great medical associations of national scope and which is laboring to coördinate and consolidate the activities of all these many bodies towards the immediate reduction of the mortality from this disease by means of a generalized professional and popular campaign of education. Cancer has today the largest mortality of any disease of adult life, being in fact exceeded in its mortality only by the infantile diseases and

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by that of tuberculosis at all ages, and if, as is now believed, by far the greater part of this mortality is readily preventable, there is good reason for the public interest in the subject.

While our knowledge of the essential nature of the malignant diseases is still imperfect, the work of the last few years has developed changes in our views of their natural history, which are already revolutionizing their treatment. The leaders of professional thought have now generally accepted the newer views of the natural history and preventability of malignant disease, but it is only lately that their conviction has crystallized into the active teaching of these views which is now taking so prominent a place in both the professional and public press.

The laity are awakening to a widespread interest in them as is shown by the eagerness with which the daily newspapers are publishing "Cancer" articles, both well inspired and the reverse.

The profession are proving singularly apathetic to the movement, perhaps because it is always easier to impress a new point of view upon those who have had no previous acquaintance with the subject than upon the better educated who have long been adherents of an opposite point of view; but from whatever cause this apathy may arise, recent studies by many authorities have made it plain that the great mass of the profession have not abandoned the antiquated, nor assimilated the more modern, views of the natural history, prognosis, or curability of malignant disease, and have developed further the very curious fact that this backwardness is almost, if not quite, as prevalent among promi-

* Prepared for delivery at the annual meeting of The Massachusetts Medical Society on June 9, 1915.

nent metropolitan medical practitioners as in the more remote districts. That the public should be accepting an advance more readily than the profession is far from a safe position for either the practitioner or his patients.

This paper has, then, two objects: an attempt to set forth in concise form the accepted points in the newer knowledge of malignant disease, and incidentally to attempt to show, both by general discussion and by quotations from personal experience, that although these principles have been so universally accepted by the leaders of both pathological and surgical thought that they may today be regarded as assured, they, nevertheless, have not been as yet so generally assimilated by the great mass of the profession that a failure to have accepted them can be as yet considered as constituting that lack of the "common knowledge of the profession" which some of the laity now seem in danger of believing that it is.

The essential facts in our most recent view of the malignant diseases are, then:—

That they are at first strictly localized and during this localized stage are curable.

That there is no sharp line of demarcation between the benign and malignant new growths or ulcerations, but that the malignant often, if not usually, follow the benign and originate in them.

That while it is perhaps true that only a minority of even long continued benign neoplasms or ulcerations ever undergo a malignant change, such an occurrence is, nevertheless, so far frequent that every continued neoplasm or ulceration should be considered so far potentially malignant as to demand serious consideration.

That a heavy burden of responsibility always rests on any physician who declares that any new growth or ulceration which is brought to his attention is benign and therefore unimportant.

The most fundamental point in these principles is that the malignant growths and ulcerations are frequently secondary consequences of benign lesions and that consequently the benign can seldom be safely considered permanently benign) was on the point of realization fifty years ago. In support of this the reader may be referred, among other books, to Gross' once well known volume on "Tumors of the Mammary Gland," in which the clinical evidence for the transmutation of the benign into the malignant is quoted from a long line of his predecessors. The evidence was even then so overwhelming that this view would undoubtedly have shortly become the common property of the profession if the opposite view had not been adopted with great vehemence by a number of eminent pathologists. We can now perceive that these gentlemen were prejudiced in favor of the microscope and against anything but laboratory evidence. The sneering attitude which they and their successors adopted towards the opposing views unfortunately, for the time, carried the day, and as a result all the profession now in practice, with the exception of a few of the very youngest, were educated to a

firm belief that the benign, if once correctly diagnosed as such, must remain benign forever. This most unfortunate error has cost the lives of countless thousands and persists in the minds of the great mass of the profession even today, when there is perhaps no pathologist of authority who still adheres to it, and when the clinical evidence to the contrary has become overwhelming. Now that the contrary view has been for some years universally accepted by the surgical side of the profession, and especially since the laity is becoming generally imbued with it, it is of the utmost importance that its existence, as at least a probability, should be brought to the attention of every practicing physician, for his judgment upon it.

That the great mass of the profession still adhere to what all but the youngest were taught in their student days, *i.e.* to a belief that benign and malignant neoplasms and ulcerations are totally distinct phenomena, that they are to be distinguished from each other by a carefully outlined differential diagnosis, and that the benign cases will remain permanently benign and may therefore be neglected, has been of late repeatedly demonstrated. Among other evidence we may quote the following:—

The very active and excellent Cancer Commission of the Pennsylvania Medical Society collected statistics on 400 operative cases of malignant growths with the result of showing that in these cases the patient's physician had known of the conditions present, in superficial cancers for an average of one year, and in deep-seated cancers for an average of thirteen months before any treatment was undertaken. The commission remarks in its report that these results when tabulated were "somewhat startling."

An almost exactly similar result was obtained by a recent tabulation of 65 patients made in New York, and other similar statements have been made by almost every surgeon who has lately written on the subject. It is curious, too, that most of them remark that the failures to advise judiciously prompt action occur almost as frequently in metropolitan circles as in the remote districts where backwardness would seem more excusable. If this last statement be true, as I think it is, it is another point in favor of the belief that a failure to have as yet absorbed the modern views which may now be stated as accepted knowledge among specialists cannot as yet be held to constitute liability for "Failure to possess the common knowledge of the profession as a whole."

A recent review of personal records makes it seem, however, as though this were not the last word which should be written upon the subject. This review has indeed made it most clear that in this section of the country at least the degree to which recent advances have permeated the mass of the profession varies greatly, as between the several localities in which cancer is most frequent, and after careful consideration it has seemed that the most clear and comprehensive

way in which the subject can be presented is by a consideration of the malignant diseases under each of the four groups of organs in which they most commonly occur.

In a single brief article it is, of course, impossible to discuss the symptoms, diagnosis and curability of the malignant diseases in the many situations in which they occur less frequently. This paper will then be limited to their discussion under the heads of: Cancer of the Breast, Cancer of the Uterus, Cancer of the Digestive Organs, and the Cancer of the External Surface and Orifices of the Body.

The method adopted will be the presentation in brief form, under each of these classes, of the general principles which should govern the management of cancer in that situation, and the illustration of these principles by cases selected from personal experience, in so far as the extent of that experience renders this possible.

It must be promised further that the word cancer is here used in its popular sense and as a more convenient term than "malignant disease."

The cases used in illustration have been selected to show, both the very general failure of the profession to as yet grasp the fundamental points of our newer knowledge, and at the same time the principles which should govern their management. It will then be obvious that the names both of the patients and of the professional gentlemen by whom these patients were first seen must necessarily be omitted. They will, therefore, be reported only under the case numbers of the writer's clinical records.

BENIGN AND MALIGNANT TUMORS OF THE BREAST.

The breast is a locality in which carcinoma is extremely frequent. It is, furthermore, a situation in which early action is extremely important since secondary invasions into the axilla and sub-clavicular space, *i.e.* generalization of the disease and an unfavorable prognosis, occur very soon after the appearance of a malignant change in the original nodule.

It is perhaps the locality of all others in which disastrous delay is at present most often practised, and this probably because it is, of all localities, that in which the differential diagnosis between the benign and malignant growths had been in former days most carefully worked out and most generally taught. It is really that in which there is, in fact, least distinction between the benign and the malignant, and in which the origination of the malignant growths in masses which were evidently benign at the start is today most apparent.

It is, too, one of the localities in which the discovery of the new growths in their initial and harmless stage is most easy, and in which their removal while still benign is most easily effected without mutilation, and by trifling operations. It is, moreover, perhaps of all others, the locality in which the difference between the trifling

nature of these operations for the removal of a small mass, and the disfigurement of the extensive operations for the removal of established carcinoma is most distinct and apparent.

The general principles which should govern the management of new growths of the breast are:—

That all perceptible lumps in the breast, except the acute inflammatory masses in the nursing breast, should be regarded as potential carcinoma.

That all lumps in the breast which are evidently persistent should be at once removed, no matter how small they are or how evidently benign they may appear.

That in cases in which the patient is seen so soon after her detection of an apparently insignificant lump that it may be necessary to delay a little in order that the physician may assure himself of the certain presence and actual persistence of the mass, the patient should be seen at very short intervals, and the delay should be counted at most by weeks and not by months.

That he who delays more than a very few weeks before acting himself, or seeking expert advice, in the case of small and apparently, evidently benign new growths, or who delays at all in the case of larger and doubtful growths takes upon himself a responsibility which men of wide experience would not endorse.

Manmary lumps of benign appearance are sometimes unexpectedly malignant.

CASE 1. Private Records, Series B. 2933. A married woman of 48 was sent by a leading physician in another city, who stated in sending her that he had found a large uterine tumor, probably fibroids, which in his opinion demanded removal; that he had also found a moderate sized mass of apparently benign character in the left breast which he thought should also be removed; but that he thought the questions, —which tumor was the more pressing, whether either of them might be temporized with, and whether the patient could withstand the performance of both operations at one sitting, were intricate and grave. The latter course was decided upon. The fibroids were removed by hysterectomy in the presence of Dr. Wm. F. Whitney, who on section pronounced them to contain no malignant tissue. The left breast was the site of a mass about the size of a two-ounce bottle, movable, unattached to the skin, uniform in shape, and in short presenting every evidence of a benign nature. A Warren incision outside the breast was made in the expectation that the growth could be removed without disturbing the remainder of the breast and without mutilation. The greater portion of the tumor had been removed in this way when its upper portion proved to be far less movable than had been supposed and on submission of the specimen to Dr. Whitney it was found to contain two carcinomatous nodules of small size situated at distinct and well separated points of a hard, fibrous, and otherwise benign tumor. The necessary extension of incisions was at once made, the breast and pectoral muscles removed and the axilla and sub-clavicular spaces cleaned out. One axillary gland was enlarged, but

on section showed no evidence of new growth. After a lapse of nearly seven years there has been no recurrence and the patient is in the best of condition. She undoubtedly owes her life to an intelligent and progressive family physician, who urged her to an immediate operation within a few days of his first discovery of the condition. With two nodules of actual carcinoma, and an axillary gland already enlarged, it is probable that the loss of but a very short time would have put this patient in the hopeless class.

The case is quoted as an excellent illustration of the necessity for early operation in apparently merely benign tumors, and of the importance of having a pathologist present at the operation, for I think no sane surgeon would have added an extensive radical operation for carcinoma of the breast to a complete hysterectomy, without an actual microscopic demonstration of the presence of carcinoma in the breast during the progress of the operation. It is also an excellent illustration of the importance of prompt action on the part of the general practitioner.

A further general principle which for the sake of clearness was omitted on a former page, but which applies to all cases of malignant disease may appropriately be inserted here. Recent experience and statistics have shown clearly that the percentage of subsequent immunity is greatest when the microscopic examination of a specimen and the radical operation (if the disease is malignant) are both executed at the same sitting. It has been shown most clearly by statistical study that to permit an interval between the removal of a growth for microscopic examination and a subsequent radical operation increases the percentage of recurrence substantially.

It should, therefore, be a general principle that all operations for the removal of a portion of a doubtful growth should be done in the presence of a pathologist and with the patient prepared for a radical operation if his report is unfavorable.

Delay may convert an undoubtedly benign tumor of the breast into a most malignant growth.

CASE 2. Private Records, Series B, 3963. An unmarried woman of 36 was sent in by a leading medical practitioner of another city, a gentleman whom I have known for many years, whom I regard as one of the best general medical practitioners in Massachusetts, and whom I have seen exhibit in several other cases great clinical acumen and a most progressive spirit. He is in no sense a backward practitioner. He had known and attended this patient from her childhood; and when, a year and a half before I saw her, she came to him in a state of great agitation, stating that for a number of years she had known that her left breast was enlarged, and that she had recently discovered a lump, he made a careful and conscientious examination and assured her that the growth was benign and that she need not worry. His differential diagnosis was entirely justified by the characteristics

of the tumor, if such a diagnosis is ever safe. Under all the rules of practice which he had been taught and had applied all his life the position he assumed was the right one, but it happened that in his busy life and in spite of his progressive spirit and wide reading he, a medical practitioner, had not happened upon the latest surgical dicta about cancer of the breast. He saw her from time to time, and when at the end of a year it was evident that the growth was enlarging he told her that it would probably be necessary to remove it at some time, but that there was no hurry. He had not happened upon our latest advance of knowledge that a tumor once benign is not necessarily always benign. After a year and a half of observation he advised operation. There was at this time a diffuse mass centralized below the nipple and extending through a considerable portion of a large breast. For two or three months the patient had noticed a very slight serous discharge from the nipple which had from its start been slightly orange colored, and within the last few days had become slightly bloody. Firm pressure on the mass produced an increased flow of this fluid. It was nowhere adherent to the skin and appeared freely movable in all directions. It was diagnosed as a multiple cystic mass which had of late taken on a doubtful character. There was no evidence of enlargement in the axilla. A diagnostic incision from the nipple to the outer edge of the breast, made in the presence of Dr. Whitney, confirmed this diagnosis, and made it evident that small cysts would be found throughout the breast. The whole breast was removed and was submitted to Dr. Whitney. The operation was suspended while he made a prolonged examination of the specimen. In spite of his enormous experience in this class of cases, and for the first time in the writer's long collaboration with him, he refused to give a positive opinion, but recommended that nothing more should be done, his belief being strong that the growth was not malignant, and that it was for the patient's interests to take the additional risk of recurrence which would be involved in the postponement of the remainder of the operation for a few days, in case a pathological examination at leisure showed some malignant tissue, rather than to lose her pectoral muscles and axillary tissues at this sitting. After hardening the specimen and making serial sections Dr. Whitney found a nodule of carcinoma, and three days later at a secondary operation the pectoral muscles were removed with the axillary and sub-clavicular glands. The axillary glands proved to be extensively carcinomatous. The case is a very recent one and the patient is in good condition, but the prognosis is not good.

When a practitioner of the class of this patient's family attendant takes the course that he did, not carelessly or without thought, but after the exercise of his best efforts in a case in which he was deeply interested, it is evident that the day has not yet come when our recent advances have become the common property of the profession, or when the general practitioner can be held liable for lack of common care and knowledge if he counsels delay in the management of a case of benign tumor of the breast such as this case undoubtedly was when it was first seen; yet here is a case in which the patient was subjected to extensive mutilation and grave risk for the future, both of which might easily have been

avoided had she been made the subject of a minor operation at the time when she first brought the lump to the attention of her physician. It is further quoted as a case which illustrates most effectively the development of malignancy in a growth which was plainly cystic, was long existent, and therefore had been undoubtedly benign at the start.

The axillary glands in this case were extensively involved, and it is not probable that the three days' delay between the biopsy and the second operation was of any serious importance in this case, yet it is evident that as the case turned out it would have been better for the patient if the complete extirpation had been done at the first sitting. That the malignant tissue was so inconspicuous as to escape the observation of an unusually experienced pathologist until after prolonged search, makes it exceptionally striking as a transition case.

Any definite chronic lump in a breast should be removed while that is possible by a non-mutilating operation.

CASE 3. Private Records, Series B. 3883. Married woman, 41 years old, childless. Family history of repeated carcinoma. When first seen was complaining of abdominal discomfort and tenderness, with dysmenorrhea, and some pain in left breast during catamenia. All these symptoms were of some years' duration. On examination there was a probable small right tubo-ovarian enlargement, and a doubtful lump in the left breast. Under minor treatment improved considerably, and was recommended to return at short intervals for observation, but eight months later reported recurrence of catamenial discomfort with increased flow, and several inter-catamenial attacks of pain and flowing. Left breast more painful than before during catamenia. On examination right tube certainly quiescent, uterus certainly not enlarged, foul cervical leucorrhea, and a small but now for the first time distinct lump just outside the left nipple. Recommended dilatation and curettage and excision of mammary lump. At operation a week later the cervical canal was found so nearly impervious and the substance of the cervix so cicrhotic and brittle that an amputation of the cervix was judged safer, and likely to be more beneficial, than a dilatation—it was followed by a curettage. The lump in the breast being outside and below the nipple, was exposed by a small radiating incision and proved to be somewhat diffuse and ill outlined. A small pie-shaped section of the breast was removed. Careful palpation through the incision showing the rest of the breast to be free from trouble, and Dr. Whitney pronouncing the specimen non-malignant, the incision was closed. The subsequent microscopic report upon the breast was glandular proliferation with dilated ducts and acini. Diagnosis: diffuse glandular hypertrophy.

This patient's family history showed several instances of death from carcinoma. The removal of an abnormal cervix by a vaginal operation which probably involved less risk than the dilatation of a brittle cervix, not only removed abnormal tissue, but provided the permanently

good uterine drainage which will give her the best possible chance for the disappearance of one of those chronic irritations which it is always well to dispel. The new growth of the breast was distinctly benign but was of the class of diffuse, proliferative, benign new growths which, when they appear during the forties, are extremely well worth removal. Neither operation involved risk or disfigurement other than the linear scar in the breast. More time after the actual appearance of the mammary lump might have been permissible for observation, but the conditions were definite, and the loss of time, a week in bed and a week of convalescence, seems fully justified for prophylaxis.

The apparent initial delay of eight months was due to the two facts that at the first visit the evidence of the presence of a mammary lump was of doubtful force and that the patient failed to report in one month as she was directed to do.

It may be noted that when these small lumps in the breast are in the external or outer quadrants a radial incision is usually preferable, but that when they are so situated that the radial incision might be visible in evening dress they may be removed without disfigurement by the Warren operation, in which the incision follows the lower and outer edge of the breast and the mamma is separated from its underlying fascia and turned upward and inward, after which a benign mass in any part of the breast can be removed without further incision through the skin, the operation being in fact no more severe to the patient than that done through a linear incision.

CANCER OF THE UTERUS.

Uterine cancer occurs in two forms which have quite different characteristics both pathologically and clinically. The squamous celled cancer of the cervix originates, as its name implies, in the cervical portion of the organ and remains limited to the cervix throughout the earlier stages of the disease. It is ulcerative and excavative in character and undergoes extension through the lymphatics of the broad ligaments extremely early in its course. After this disease has once become definitely malignant the most radical operations yield comparatively few cures; on the other hand, while almost incurable when once established, it is yet extremely susceptible of prevention. It probably originates always in or about superficial ulcerations or erosions of the vaginal portion, and if all such lesions occurring in women over thirty-five or forty were efficiently treated while they are in this stage, we should have practically no cancer of the cervix. The main initial symptom, and perhaps the only distinctive symptom of this affection, during the benign, or as it is often called, pre-cancerous, stage is the existence of a leucorrhea, usually irritating in character and sometimes a little streaked with blood. This symptom is, of course, not pathognomonic of

cancer; it is in fact characteristic of all the irritative conditions of the cervix, the great majority of which would not develop malignancy; but the all important fact is that though all leucorrhœas originating in middle life, are not the result of cancer, yet nevertheless all, or almost all, cancers of the cervix are preceded by such leucorrhœas, and could be prevented from occurring by efficient treatment of those leucorrhœas.

At the risk of repetition, we may then say again that if all such leucorrhœas beginning in middle life were efficiently treated there would be practically no cancers of the cervix. Every case which presents this symptom should be carefully examined both bimanually and through a speculum, and the source of the leucorrhœa accurately determined. In many cases the ulceration or erosion can be healed by minor treatment and in some cases will remain permanently cured, with consequent disappearance of the leucorrhœa, but in a larger number of cases, and in all the more important cases, the trouble will recur within a short time after its relief by minor treatment. In these cases permanent relief can, however, be obtained by the appropriate plastic, which may be in one case the Emetet operation for lacerated cervix, in another the equally trifling operation of an amputation of the vaginal cervix, or in a third the enlargement of a narrowed external os and the institution of adequate cervical drainage by a Pozzi or Dudley dissection. The relief to general health and discomfort afforded by these now trifling procedures is in most cases sufficient by itself to warrant their performance, if minor treatment fails of a permanent result; and they are far more than warranted by their efficient prophylaxis of cervical cancer.

Cancer of the uterine body presents a very different picture. It begins in the mucous membrane of the uterine body, usually as an adenoma, and often preceded by long existent glandular hypertrophy; it progresses somewhat slowly through the stage of adeno-carcinoma into fully developed cancer, but it tends to remain strictly localized within the uterus until a late stage in the disease, when it is usually disseminated by the protrusion and perforation of some portion of the disease through the peritoneum covering the uterus; after which secondary new growths spring up at separated spots all over the peritoneum, probably by the dissemination of cancer cells throughout the peritoneal fluid and their implantation and growth at spots determined by chance.

Cancer of the body gives a good prognosis after total hysterectomy throughout all the earlier part of its course, and a fairly good prognosis after the same operation, until it actually escapes from the uterus and becomes disseminated. Its onset is usually attended by the appearance in the earliest stages of a flow which is at first intermittent and scanty, later continuous and often large in amount, but which is throughout sero-sanguineous, until as the dis-

ease becomes extensive it usually becomes definitely sanguineous. When this discharge is present in typical form it is practically pathognomonic of adeno-carcinoma of the body. Unfortunately it is not always distinctive. As a result, no doubt, of some peculiarity in the localization or character of the growth there are not a few cases in which the character of the discharge is sanguineous from the start. Frank flowing in a woman of middle age must, therefore, be regarded as also suspicious.

The adeno-sarcomata of the uterine body, though much less common, have a very similar clinical history and may be included here under the general title of malignant disease or "cancer" of the body.

There is a common superstition which is widely prevalent among the laity and too common in the profession, to the effect that increased flowing at the menstrual period is a characteristic of the menopause and is harmless. There is, perhaps, no false belief connected with uterine disease which works more widespread disaster than this. The leading characteristic of the years which precede the climacteric in a woman with normal organs is a decrease in the amount of the catamenia. Any inter-menstrual flowing at this time of life is almost certainly the result of some neoplastic condition (including here the conditions usually grouped together under glandular hypertrophy of the mucous membrane); and though an increased flow at the normal time is not always neoplastic and may even disappear spontaneously, it is always the product of some abnormality in the organs, and is so often the first symptom of a new growth that it should always be regarded as a danger signal which demands attention and a careful diagnosis of its cause.

One other form of malignant disease must be mentioned here as being practically, if not strictly, uterine before we can summarize the general principles which should guide the practitioner in his management of the early stages of malignant disease of the uterus. A considerable proportion (not less than 20%) of those fibroids which first appear during middle life or which persist through the pre-climacteric or climacteric period undergo, sooner or later, a malignant degeneration, usually sarcomatous. Such fibroids should, therefore, be removed while still innocent.

The importance of increased flowing during middle life, and more especially of any recurrence of flowing after the menopause has been so far hammered into the profession for now so long a period of years, that, in this section of the country at least, the neglected cases which are still occasionally seen are usually the fault of the patient rather than of her family practitioner, the comparatively few cases where the family attendant has delayed action too long being usually cases of cervical rather than corporeal cancer. Too many general practitioners still fail to realize that since malignant disease habit-

ually occurs either within the substance of benign tumors or about chronic inflammations or irritations, no erosion or ulceration of the cervix which is seen in a woman of middle age can be safely pronounced benign and unimportant.

Every member of the profession ought to realize that an ulceration of the cervix which is plainly benign at the time he sees it may, nevertheless, become malignant in time, and should for this reason, if for no other, be treated and treated to a permanent cure, as surely as it is discovered. The comparative backwardness of the profession on this point in uterine cancer is undoubtedly due to the fact that its full realization has come to us only lately. It is but a comparatively few years since gynecologists in general have come to an active recognition of the principle that a benign irritation of the cervix cannot be trusted to remain permanently benign in a woman of middle age.

The general principles which should govern our management of incipient cancers of the uterus are, then:—

That while every irritating or blood streaked leucorrhea in women in middle life is not necessarily malignant, every such leucorrhea is so far suspicious of malignancy that it must be taken seriously, and demands an examination which should be pushed to the point of showing a satisfactory cause for the leucorrhea.

That every erosion or ulceration of the cervix in a middle aged woman should be regarded as a possible source of cancer and treated for the prophylaxis of cancer.

That the milder lesions of this character may be treated by minor means, but that all the more severe of these lesions, and those milder ones which recur after minor treatment, should be treated by excision of the inflamed tissue.

That this should always be done in the presence of a pathologist, and with the patient prepared for radical operation if malignant tissue is found.

That all cases of marked increase of the catauria during middle life should be regarded as suspicious, all cases of inter-menstrual flowing or of recurrence of flow after the menopause as highly suspicious, and all cases of intermittent sero-sanguineous flow as pathognomonic of cancer of the uterus.

That these symptoms are rendered more significant by the coincident existence of enlargement of the uterus, but are not necessarily negatived by its absence.

That any such flowing demands careful curettage in the presence of a competent pathologist and with the patient prepared for hysterectomy in case an examination of the curettings shows malignancy.

That a negative result from the examination of the curettings relieves the operator of the necessity of performing a hysterectomy at that sitting, but does not warrant a positive or permanent diagnosis of a benign source of origin for

the flowing. This point is an important one and will be illustrated by cases.

That all fibroids or polypi occurring or persisting during middle life should be promptly and radically removed.

Benign growths of the uterus do not necessarily remain benign.

CASE 4. Private Records, Series B. 3356. A widow of 61 whose sister had died in this patient's house a little while before of a cancer which was recurrent six months after a hysterectomy, presented a small polyp protruding from the os. Under ether the cervix was split bilaterally to the internal os, when several additional polypi were seen hanging from long stalks, but evidently originating within the fundus. The internal os was dilated and the uterus very thoroughly curetted. The polypi and curettings were submitted to Dr. Wm. F. Whitney, who pronounced them wholly non-malignant. The patient was, however, urged to report every six months, which she did for about two years in normal condition. Three years and a half after the removal of the polypi she again had a slight show, and at once reported. The uterus seemed slightly enlarged. She was curedtted in the presence of Dr. Whitney. Very little material was obtained and Dr. Whitney pronounced this negative, but the uterus was four inches deep. This fact in a woman of 65 with recurrent flowing, and whose uterus was known to have been small three years before seemed highly suspicious, and was thought to warrant an exploratory abdominal incision. Note her prolonged exposure to another case. This at once showed an enlarged uterus of soft and suspicious consistency and containing a number of small fibroids. It was removed by hysterectomy and was found by Dr. Whitney to be in the stage of infiltrating adenoma. There has been, of course, no recurrence.

The technical difficulties involved in procuring a complete examination of the mucosa by curettage and the examination of the fragments are such that a negative result is always unreliable. If the symptoms persist the curettage should be promptly repeated.

CASE 5. Private Records, Series B. 3409. A sterile woman of 53 had noticed for two years a profuse leucorrhea, which had been lately increasing in quantity and had become bloody. Upon examination the uterus was not enlarged, but a foul and bloody leucorrhea could be seen to escape from the os. Curettage was recommended, but she was not seen again for three and a half years, when she reported that she had been cured and the curettings declared negative; that the leucorrhea had not improved, had gradually become watery and slightly colored, but of late had been bloody. She said that the curettings having shown the case to be non-malignant, neither she nor her attendant had been worried, but that the discharge was now becoming annoying in quantity. On examination the uterus was found much enlarged and the discharge pathognomonic. Curettage brought away adeno-carcinomatous material and a hysterectomy removed an adeno-carcinomatous uterus, in which, however, the growth had fortunately not yet penetrated the wall. The case is somewhat recent but the prognosis is fairly good.

CANCER OF THE DIGESTIVE ORGANS.

Cancers of the digestive organs form an important and on the whole unfavorable group.

Cancers of the great digestive glands, the liver and pancreas, fortunately form a small proportion of this group as they can rarely at present be diagnosed while in a condition which offers any great hope.

The more common seats of this group of cancer are in the stomach and large intestine. The great majority of all cancers originate about chronic ulcers, and if all chronic ulcers of the stomach were promptly healed or excised the malignant diseases of the stomach would be greatly decreased in frequency, if not done away with. Not all ulcers can be healed without operation, and while duodenostomy for the relief of gastric irritation and the excision of a portion of the stomach for the removal of a benign ulcer are no longer operations which carry a large mortality, they are still far from trifling operations; they certainly cannot today be placed in the class with removal of small lumps in the breast as trifling procedures which should be performed as a routine for the prophylaxis of cancer. Each case of this character must be treated on an individual basis, but the general principle which should govern their management is undoubtedly; if every case of gastric indigestion in a middle aged person which proves to be annoyingly persistent and resists ordinary methods of treatment were regarded as suspicious of cancer and subjected to diagnosis by the most careful methods of physical examination, including analysis of the stomach contents and the bismuth x-ray used with a series of instantaneous exposures, there would be an immediate reduction in the number of deaths from cancer of the stomach. These methods of examination are as yet far from perfected. They require the use of elaborate and expensive apparatus, and in special such x-ray plates as are demanded for this purpose cannot be obtained by the ordinary office outfit, or indeed by any one but an expert Roentgenologist. Their interpretation is difficult and usually demands consultation between medical and surgical experts. Each case is a problem by itself and a problem for serious study. Probably all that can be demanded of the general practitioner today is that he should realize the possibility that any case of persistent indigestion in a middle aged person, especially if attended by loss of weight and change of color, may often mean the beginning of what may in the end become a malignant process; and that the patient has a right to be warned of this and to take advantage of the excellent chance of escape which is afforded by such expert study of the case in the early stages.

Cancer of the intestine is most common in the lower intestine, and is there most common in the sigmoid and rectum. In this last situation there is, under modern methods, a good chance of its detection while in the early stages. In the other

parts of the bowel it is rarely detected before it has become definitely malignant, and but seldom while it is susceptible of successful radical removal.

The early symptoms of a new growth in any part of the colon are persistent constipation with consequent indigestion and brownish discoloration of the skin, usually some loss of weight, and as a rule sense of weight in the pelvis and some straining at stool.

Lack of space must prevent discussion here of most of the somewhat intricate problems involved in the diagnosis and surgical treatment of cancer of the colon in its several situations, and that of the lower portion only will be selected for illustration.

Cathartics and enemata do not produce satisfactory results, and though in cancer of the upper part of even this region the habitual motions often consist of large well formed feces, yet after the use of cathartics, *i.e.*, after the rectum is emptied and the feces begin to come down from above, ribbon feces may often be detected. Slight rectal bleeding or streaking of the feces, with blood may be observed in the early stages, either as the result of hemorrhoids secondary to the constipation and indigestion, or from irritation and bleeding of the mucous membrane at the point of obstruction.

It will be observed that no one of these symptoms is pathognomonic of a new growth. The whole symptom-complex is merely that of moderate obstruction in the lower bowel, and may be due to any one of many causes.

An actual differential diagnosis between obstruction due to a malignant growth and one which is the product of some other mechanical cause can rarely be made by any method, and the differential diagnosis between the benign and malignant new growths can never be established in the early stages. The utmost that we can expect is the detection of an actual mechanical obstruction in this region; when the strong probability which always exists in middle aged people that such an obstruction is due to actual or potential malignancy must always be an element in the determination of treatment. In some few cases after thorough emptying of the bowel by the persistent use of cathartics and enemata, it may be possible to distinguish a mass by combined recto-abdominal, or in women recto-vaginal-abdominal palpation under anesthesia, but this is rarely possible in the early stages. It is, moreover, a safe general principle that benign new growths of the intestines usually, and persistent localized inflammations with thickening of the walls amounting to obstruction frequently, become in time malignant if left undisturbed.

The diagnosis of actual mechanical obstruction with or without a probability that the obstruction is due to a new growth of some nature can usually be established by the use of the bismuth x-ray and can frequently be confirmed by the proctoscope, which under modern technic

can often be made to explore successfully the whole of the sigmoid, and in some cases the descending colon.

The conditions of these cases are such that the problem involved is an essentially surgical one, yet the hopeful part of the surgeon's problem can only arrive when the patient or the original attendant has recognized the possibilities early, and the necessity of the patient's taking the decision in the case must usually make it necessary that the family attendant should take his full share in the discussion of the possibilities, hence it is important that the general practitioner should be familiar with their general outline.

The surgical problem presented by new growths of the rectum and sigmoid, whether they are detected in the benign or malignant stage, is never an easy one for either the patient or the surgeon. In a very large proportion even of the ultimately successful cases, the operation involves at least a temporary colotomy and its subsequent closure. In most new growths, and in all malignant growths, of the rectum or lower sigmoid the operation is best done in two stages, and if the growth is in the rectum or extreme lower end of the sigmoid it can but seldom promise any better ultimate result than a permanent colotomy with the discharge of feces through an artificial anus in the abdominal wall. Nothing but the dreadful suffering which attends death from cancer of the rectum can be worse than the condition of the patient who has a permanent artificial anus and the possibility of a recurrence of the disease below.

Even in the exceptional cases in which a benign or early malignant growth of the sigmoid is so situated that it can safely be removed by resection, and that the divided ends of the intestine can be brought together without undue tension, the operation is one which involves a large mortality. The death from cancer of the rectum or sigmoid is, however, one of such great suffering, and the last stages of life so frequently demand the formation of an artificial anus for comparative euthanasia that the risks involved in a resection are well worth taking whenever that operation is possible, and an exploratory abdominal incision on the chance that the growth may be removable, and the possibility that it may be removable without a permanent artificial anus, is probably wise in any case in which a tumor of the rectum, or more especially of the sigmoid, has been detected.

In the writer's opinion the general principle of the management of such cases should be that the patient should be given a full explanation of all the circumstances of the case with the arguments for and against operation fairly and lucidly set forth, and should be allowed to make his own decision. No other course can safe-

guard the patient and his family from unavailing regrets or the surgeon from sharp criticism.

CASE 6. Private Records, Series B. 3781. A single woman 38 years old. Had been operated upon eleven months before by a first class metropolitan surgeon whom she had consulted for dysmenorrhea, difficult defecation, and bearing down pain in the pelvis. He removed an ovarian cyst only to discover a new growth in the rectum. He excised a section of this growth and submitted it to a competent pathologist, who pronounced it benign. The patient and her family gathered from him the impression that the growth was harmless and would require no treatment. The patient's pain was not relieved by the operation but increased in severity. The family, in consequence of the impression that they had gathered from the surgeon, believed her pain to be hysterical and insisted that if she would pay no attention to it it would disappear. She was sent to a neurologist, who after a time became convinced that the pain was organic in origin and recommended another opinion. The touch revealed a large retro-uterine mass compressing the rectum. The proctoscope and the x-ray added confirmatory evidence of its rectal situation, extent, and probable malignant character. The patient's pain was evidently unendurable, and even when the desperate nature which would now characterize any operative attempt to relieve her had been fully explained to her, she demanded operation, on the ground that the barest chance of relief was worth anything that she might have to go through, and that death from operation was preferable to her existing pain; her only stipulations being that the operation should be the most radical possible and that she was willing to take any and all risks. An incision demonstrated the absolute impossibility of any removal of the growth, but a portion was excised and pronounced carcinomatous, and a colotomy was done for the relief of the incessant rectal tenesmus. Fortunately for the patient she failed rapidly after the operation and died in forty-eight hours.

From the rectal situation of this growth it is probable that even while it was small and benign an operation for its removal would have involved the establishment of a permanent artificial anus, and the surgeon who found an operation for the removal of an ovarian cyst complicated by the presence of such a tumor of the rectum, would probably have been unjustified in subjecting the patient to the great risk and grave mutilation involved in so extensive an operation without giving her a chance to decide upon it herself in advance; but had she been informed of the probability that the persistence of this small growth in her rectum would probably in the end expose her to the suffering involved in a death from cancer of the rectum, she would certainly have been carefully watched, and would have made up her mind at leisure upon the choice between the two alternatives offered, at a time when the radical operation would have offered her at least a chance of life, and of relief from suffering.

Her family would have been spared much self reproach for having urged upon her that her undoubtedly intense pain was hysterical. The surgeon concerned would have escaped very severe criticism.

Where the tumor can still be regarded as fairly benign the possibility of complete functional cure, as opposed to the inevitable suffering which results from the development of malignancy, should never be ignored in making the decision.

CASE 7. Private Records, Series B. 3926. A single woman of 60. Had had occasional abdominal pain for seven years. Hemorrhoids for three years and of late urinary frequency. Palpation of the abdomen developed the presence of an enormous amount of feces in the descending colon and sigmoid, rendering further examination useless. A week of hospital treatment with catharsis and enemata emptied the colon, with the production of unusually large quantities of feces. Examination under gas developed the presence of a small nodular mass, movable in the pelvis and probably intestinal in situation. The proctoscope was arrested at a spot which was believed to be in the lower sigmoid and to represent a narrowing of the lumen of the gut with somewhat reddened mucous membrane. The patient had lost weight and flesh, and the skin showed marked brownish discoloration, but cachexia was not marked and the constitutional condition was not worse than could be explained by constipation and the retention of feces. The diagnosis was neoplasm of the sigmoid, character uncertain. An abdominal incision showed a new growth involving about eight inches of the gut at about the junction of the sigmoid and rectum. Careful search showed no secondary nodules. The affected portion of the gut was removed and submitted to Dr. Whitney, who pronounced that it was benign and consisted of a portion of gut with much contracted lumen, and its walls thickened by numerous small diverticula surrounded by inflammatory induration. The conditions were extremely unfavorable for an end-to-end anastomosis and the ends of gut were too short to permit of a lateral anastomosis without unsafe tension. It was, however, possible to bring both ends of gut into the abdominal wound and fasten them there with stitches and forceps. The patient made a prompt convalescence, the resulting spur was divided by force-pressure, and after somewhat prolonged and unsuccessful attempts at closure of the abdominal fistula by granulation, the abdomen was re-opened and both ends of gut having become much elongated, and moreover extensively adherent to each other as the result of the force-pressure, closure of the remaining portions of their walls by suture proved easy and to leave a good lumen. The subsequent progress of the patient was satisfactory and her prognosis is of the best.

CANCER OF THE ORIFICES AND EXTERNAL SURFACE OF THE BODY.

Such lesions as cancer of the tongue, cheeks and lip illustrate well the origin of malignant disease in chronic irritations.

Every one knows the chronic cankers of the tongue and cheek which result from the digestive action of the saliva upon some slight abrasion of the mucous membrane. Almost every individual has experienced their presence. They are usually of but a few days' duration and are harmless; yet it has been for long well established that cancers of the tongue and cheek originate almost invariably in such simple ulcers (common canker), which instead of disappearing spontaneously in a few days as they should do, are kept open for weeks or months by the unrelieved presence of the rotten or ragged teeth or other mechanical irritation which originally produced them.

Cancer of the lower lip has been long and classically recognized as the product of the irritation caused by the long continued irritation of a hot or rough pipe stem against a given spot on the lower lip in inveterate smokers. Cancer of the larynx (cigarette cancer) is the product of continued irritation of the vocal cords by the inhalation of tobacco smoke with incessant frequency. Cancer of the skin, though usually slow in becoming generalized, always originates either in some chronic crack, or from chronic irritation in the substance of some long persistent wart or mole.

The general principles which should govern the prophylaxis of all such growths is that care should be taken to promote healing of any crack or ulceration about any of the orifices of the body, and that any persistent wart or mole which is observed to increase in size, or change in appearance, after its possessor is reaching middle age, should be promptly removed either by the knife, a freezing mixture, or by the use of radium or the x-ray (which are here probably curative) before they undergo any definite malignant change.

The general principle that there is no sharp line between the benign and the malignant, but that the malignant usually arises from the benign is here, as everywhere, perhaps the most important item in the newer knowledge of malignant disease.

The cases used were selected in most instances not only in illustration of the most important of the principles involved, but also as evidence of the present position of many of the profession in relation to them. It seems clear, not only from personal experience, but also from the studies of others as reported in recent literature that all the more modern views of the natural history and principles of management of malignant disease are not as yet the "common knowledge of the profession." It seems clear also that it is important both to the public and to the profession itself that they should become "common knowledge" as rapidly as possible.

Original Articles.**THE SURGICAL TREATMENT OF CANCER OF THE CERVIX UTERI.**

BY FARRAR COBB, M.D., BOSTON,

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In 1912¹ and again in 1914² articles by me on Cancer of the Uterus were published in this JOURNAL and I welcome the opportunity to review my previous conclusions and to incorporate in the present paper the results of an added year of work.

I am able to analyze a series of cases from 1900 to 1914 inclusive, fifteen years, at the Massachusetts General Hospital, 420 in number, 98 of which were personal cases of my own. During the past year I have improved upon my original technic in the operation of hysterectomy, and, also, have devised and performed a new operation for the removal of the uterus, vagina and rectum in those cases in which the disease has invaded the posterior vaginal wall and recto-vaginal septum, cases hitherto considered inoperable. I have continued to add to the series of cases in which I have tied the internal iliac arteries as a palliative measure in the advanced cases, and, during the last six months, have had some experience with the elaborate and valuable method of Dr. James F. Perey³ of Galesburg, Ill., in the use of the actual cautery.

I wish again to emphasize the importance of early diagnosis of cancer of the cervix and to prove that the radical abdominal operation does cure a large percentage of cases and carries with it in skilled hands no excessive primary mortality.

In discussing the radical operation and the late results, the cases of cancer of the cervix have been separated from those of cancer of the body of the uterus because cancer of the fundus is a comparatively favorable form for cure by a simple hysterectomy. The important part of our work from an educational point of view is concerned with this form of uterine cancer. Wertheim's⁴ reported cases are cancer of the cervix.

By radical operation is meant substantially the Wertheim abdominal hysterectomy with certain modifications of my own. This consists of the removal of the uterus and a liberal portion of the vagina and as much of the parametrium as possible through a median abdominal incision after ligation of both internal iliac arteries; the regional lymphatic glands being removed only if enlarged to sight and palpation. This is a difficult and tedious operation and the profession and public must be made to understand that it should be done only by specially trained men. When done by such trained men it should carry with it an immediate mortality of not over 15%.

I have been interested in the radical abdominal operation for cancer of the cervix since 1901, and up to June 1, 1915, have done the extended abdominal hysterectomy 42 times, 31 cases at the Massachusetts General Hospital and 11 in my private work. My immediate mortality at the Massachusetts General Hospital has been 16.1%, in my private clinic 9%, an average immediate mortality of 12.5%.

In this time, out of the total 420 cases of cancer of the uterus, both cervix and body, at the hospital there were performed by the different surgeons 152 hysterectomies of all kinds. The difficulties of securing final information in such a large number of cases has been great, especially in the hospital cases. I feel considerable satisfaction, however, in that out of 116 cases surviving hysterectomy all but 10 have been traced. I have not lost track of any of my own cases, and can report a gratifying percentage of cured cases which will be given later in detail.

There is an appalling lack of operability in the cases presenting themselves, especially at the hospital clinics. While education of the public and the medical profession in regard to the importance of early diagnosis may increase the percentage of operable cases, the insidious onset of this terrible disease will always militate against a certain percentage of the cases coming to the surgeon in time to be cured by radical operation. There is urgent need for education on cancer of the cervix. Over three-fifths of the patients presenting themselves at hospitals, and this is true of the Massachusetts General Hospital, come too late for any attempt at a radical cure, and over three-fourths of those operated on by surgeons not especially experienced in the radical operation die inside of five years. This is due to popular ignorance as to the nature of the disease and its insidious onset, to the neglect of medical practitioners to examine their cases or to recognize the importance of conditions found upon examination, and also to the lack of knowledge on the part of many surgeons as to what is an operable case.

Our efforts to educate the community should be unsparing. A publicity campaign has been carried out to a certain extent by the committee of the American Medical Association in the last two years, but in the last year at the Massachusetts General Hospital it is a fact that the percentage of operable cases was less than any year before in spite of our selective system and attempts to educate the community.

Of the Massachusetts General cases, 4 refused operation, 63 were totally inoperable, 201 could have only a palliative operation; 152 had some form of hysterectomy. In other words, 264 cases came too late for cure, an operability of 36.1%. According to Wertheim's latest statistics 50% of his cases were operable.

Palliative Treatment of Advanced Cases. It is a duty in every case where a radical operation cannot be done to make repeated efforts for pro-

longing life and the checking of pain and hemorrhage. Much too often these advanced cases are neglected and allowed to die without much being attempted for their relief.

The use of the actual cautery with ligation of the internal iliac and ovarian arteries will prolong life for many months and stop pain and hemorrhage. The method of using the cautery should be that devised by Dr. Percy. Previous to becoming familiar with Dr. Percy's work I had been ligating the internal iliac arteries and then using the old-fashioned method of curetting away the disease and charring with a cherry-red cautery iron.

In my experience, ligation of the iliac and ovarian arteries alone is a valuable means of stopping pain and hemorrhage. This method, which I first thought original with myself, was previously done, however, by Charles Ryall,⁵ surgeon to the Bollingbrooke Hospital and Cancer Hospital of Brompton, England. He has reported over twenty cases of ligation with decided benefit and no complications.

Including the cases done by the Percy technic in the last four months, I have tied the internal iliac arteries in 23 cases, with no immediate mortality. In one case, in which enlarged iliac glands were adherent to the vessels, I tore the internal iliac vein, but was able fortunately to apply ligatures above and below the tear. Slight pain and swelling in the extremity followed, but disappeared in two weeks.

My method is, through a median incision, to ligate the ovarian arteries, then open the broad ligaments and identify the ureters and vessels and gently separate the internal iliac arteries from the underlying veins, pass the ligature carrier away from the veins and ligate the arteries with silk. Theoretically, by this method the blood supply to the uterus is reduced and the malignant growth starved.

In my last paper on this subject I gave an abstract of two cases in which ligation of the internal iliac arteries had been done, to illustrate the relief from pain and hemorrhage.

I have come to believe that curetting should not be done because of the chance of forcing cancer cells into the lymphatics. Everything that can be done with the curette can be done by the cautery. Years ago Byrne⁶ in his valuable work said that the cautery itself probably has a positive influence in checking cancer growths much deeper than the surface actually cauterized. In other words, there is hardly any doubt that the developmental activity of the cancer cells is arrested and destroyed at a distance remote from the surface upon which the cautery is used. This is the theory upon which Percy has based his work. According to Percy a temperature of 113° F will kill cancer cells, while normal tissue cells will stand from 130 to 140° F. In his cautery and special water-cooled specula and his method of using them he has made a very valuable contribution to the treatment of cancer of the cervix, especially in

its later stages. Percy himself believes that his method may supersede the radical operative treatment in all cases, but states that it is too soon to prove this by statistics of his cases. Briefly, his method is as follows: He opens the abdomen in the median line and ties both internal iliac arteries and the ovarian arteries. After this, with his assistant's hand in the abdomen, over the uterus, he uses through a special water-cooled vaginal speculum for from thirty to fifty minutes his special cautery at a low temperature, what he calls a "cold iron," the heat of which is not sufficient to charr or carbonize the tissue, about 125° F.

From seeing Percy's own work, assisting him at operations, and from using his instruments and technic myself I have come to the following conclusions: that his method is the method of choice in treating borderline and advanced cases of cancer of the cervix; that it is too early to pass accurate comparative judgment upon the value of his method in prolonging life as contrasted with former methods, and especially as to the curative value of his technic as compared with the radical hysterectomy. Time is necessary to decide this, several years yet.

I believe, as before, that in the earlier stages of the disease the extended radical hysterectomy is the method of choice, that in the advanced cases we must use the Percy method because by this we can give the most thorough application of heat with the greatest factor of safety and probably the greatest palliation. In other words, in these advanced cases we no longer have any right to use the old fashioned method of curetting and cauterization, and must offer our patients Percy's technic. Also, I believe that the moderately advanced cases which we have operated on radically in the past, should have the Percy treatment first and later the abdominal hysterectomy.

The cases in which I have used this method have had little pain and discomfort and surprisingly little sloughing and foul discharge following the long application of heat. They have been done too recently to enable me to form any conclusions in regard to the progress of the disease.

I want to emphasize the fact that the Percy operation is to be judged only from a series of cases operated on by men who understand the technic. It is not to be done by unskilled men and there is danger in its indiscriminate use of depriving certain women of their chance of life by radical operations. It is not a *cure-all* in cancer of the uterus, but has an undoubted value in selected cases.

S. M. Clark,⁷ professor of gynecology in Tulane University, New Orleans, has published a preliminary report of his experience with the Percy method. He has had 25 cases of all kinds. He does not feel that the Percy method will supplant the radical operative treatment except in the borderline and advanced cases, but he has used it as a preliminary step in his radical op-

erations. After he has opened the abdomen he has introduced the cautery well into the uterus and raised the temperature to a point where it can barely be tolerated by the hand over the uterus, maintaining the heat from ten to twenty minutes. He thinks that by so doing he may kill some cancer cells and diminish the chance of implantation metastasis.

I quote his conclusions: "Finally, as yet no true end results can be deduced from my cases, but from the temporary results obtained we feel encouraged and believe that in Percy's elaborate heat method a definite advance has been made in the treatment of cervical carcinoma, and not only is it a most valuable agent in managing advanced carcinoma, but when combined with the extensive removal of the uterus our percentage of cures will be, as we hope to show in a subsequent report, definitely improved."

This method of cauterization can and often should be repeated several times in individual cases. Percy states that he has opened the abdomen and used the cautery according to his technic, four or five times in certain cases. The need or usefulness of so many abdominal incisions is to my mind debatable. Clark also feels in doubt about this.

Between cauterizations it is to be remembered that some good can be accomplished by local applications to the cervix and vagina,—acetone, formalin or iodine. The value of radium is uncertain, but in cases in which this treatment can be obtained it should be tried. My own preference is for vaginal douches of formalin 1 to 1000 and the application of formalin 1 to 200 locally through a speculum.

What Cases Should be Operated Upon Radically? If the entire pelvis is filled with a hard mass, the uterus firmly fixed and the vagina markedly involved, no one can have any doubt but that such a case is inoperable, but there are numerous cases in which no bimanual examination, with or without anesthesia, can determine positively that the case is not one for radical treatment, because fixation of the uterus and indurated masses in the pelvis are not infrequently due to inflammatory tissue, adhesions, pus tubes or cysts. In such cases an exploratory laparotomy is necessary to settle the question of radical operation, and since the Percy treatment to be successful demands opening the abdomen, if the case is determined inoperable, the conditions are favorable for applying his treatment with heat. After opening the abdomen, before deciding the question of operability, a thorough survey of the glandular conditions is necessary, and it should be understood that to do this properly the peritoneum must be split and the great vessels laid bare, for in no other way can it be determined accurately whether the glands are pathological. If numerous and large nodes are felt, especially in the sacral chain, the radical operation is inadvisable and the Percy operation should be chosen. Moderate involvement of the iliac and obturator groups does not

contra-indicate an extended hysterectomy. Cases in which the sacral and inguinal glands are involved are absolutely unfavorable. Enlarged iliac glands are not necessarily cancerous by any means.

Even if fixation and induration in the broad ligaments is due to cancer, such cases should have the advantage of exploratory laparotomy, because it is certain some of the apparently desperate cases, even those involving the bladder, can be cured. Of Wertheim's cured cases there were no less than ten that had been considered inoperable by very worthy men. In nine others the wall of the rectum was involved, and in six others the bladder was so fixed that its loosening was very difficult. In several others the parametrium was so widely infiltrated that in separating it from the pelvic wall it gave the operator the impression that he was cutting through cancerous tissue. One of my own cases that has lived longest free from recurrence,—namely, fourteen years, was a case in which the left ureter had to be dug out of a mass of apparent disease in which the iliac glands on both sides were markedly enlarged and were removed but were not cancerous. This is the case of Elizabeth C., W.S., vol. 369, page 120. In her ease there was marked thickening and induration in the left broad ligament noted before operation. One other case of mine in which the uterus was fixed and both broad ligaments indurated, is alive and well over six years after hysterectomy. Case of Rose S., E.S., vol. 620, page 105. I have operated on three cases previously operated on palliatively by other men. In each case I have found it possible to do a radical operation; in two of them the bladder was opened and successfully repaired. One died of recurrence, one year, eight months and nine days afterwards; the other two are *cured*. The border-line cases, however, which are most difficult of operation and in which the chances of immediate mortality are great and the probability of rapid recurrence almost certain, should be treated by the Percy method.

The general condition of the patient must be considered carefully in deciding upon the operation, and the long, tedious and frequently bloody abdominal operation should never be attempted in feeble subjects. It is contra-indicated, also, in the presence of marked adiposity. In such cases vaginal hysterectomy or the Percy operation should be substituted. In certain of the adipose cases it may be possible to do a paravaginal or radical vaginal hysterectomy, the operation of Schuchardt⁸ and Schauta.⁹ My own experience has convinced me that the Wertheim operation in very fat women is one of extreme difficulty and risk. One of my fatal cases was that of a very fat woman in whom a vaginal hysterectomy was impossible on account of the inability to pull down the uterus because of firm intra-abdominal adhesions subsequent to a previous laparotomy. Death resulted from general peritonitis.

Thorough Pathological Examinations. The most favorable cases for cure are those in which the diagnosis of cancer is made early by the microscope. Unless great pains are taken, pathological examinations of tissue from suspected areas may fail to discover the disease. Possible sources of error are depending upon curetting without excising pieces, failure to obtain tissue from the diseased region, and especially incomplete study of the disease after removal. Wedge-shaped pieces should be cut from more than one place on the suspicious cervix, should involve the area of granulation tissue and the normal mucosa adjoining, and many serial sections should be cut and examined with care.

As stated in one of my previous papers as an illustration of the possibility of error, there were three cases in our hospital series in which no operation was done because the pathological reports were, in one case, "blood clot"; and in two, "simple glandular hypertrophy." All three of these cases died of typical cancer of the cervix clinically.

Technic of the Extended Abdominal Hysterectomy. The most important factors in the operation are:—

- Anesthesia.
- Abdominal incision.
- Handling of the ureters.
- Control of hemorrhage.
- Removal of the parametrium and glands.
- Prevention of peritoneal infection and implantation metastasis.

In my previous papers I have described some original technic by which I thought the Wertheim operation would be even more radical and perhaps somewhat safer, referring especially to the combined method of spinal and ether anesthesia, abdominal incision, the retraction and elevation of the ureters by tapes and the ligation of the internal iliac arteries. My work during the last year has caused me to modify my technic but little, with the exception of the use of the Percy cautery in the preliminary preparation of the patient (as the first stage of the operation).

Preliminary Preparation. Under this heading is to be considered the general preparation of the patient and also the preliminary preparation of the vagina. Special attention should be paid to the condition of the heart and kidneys, and the functional renal test should be done with care more than once. A percentage of twenty-five prohibits a radical operation.

Since the introduction of the Percy method it should be stated that all cases on which a radical hysterectomy is to be considered should have the Percy method to a certain extent used before the hysterectomy. The important thing to decide is what cases should have the cauterization and the hysterectomy done at one sitting, and, on the other hand, what cases should have the thorough Percy treatment for the maximum time limit for weeks before the hysterectomy. It

is possible that time and further experience will change my present views. I believe now that curetting should never be done, but that the diseased areas should be destroyed with the cautery. In early cases where the area of the cervical disease is small, the method of Clark previously described in this paper, of destroying the diseased area and then inserting the Percy cautery well into the uterus and leaving it from ten to twenty minutes before going on with the abdominal technic is the desired method, and that in the more advanced cases in which there is a moderate or a large amount of proliferative disease, that the complete Percy method should be used for a considerable period of time before the hysterectomy. How long one should wait before doing the complete operation after the Percy treatment is problematical and will differ in individual cases, depending upon the amount of sloughing and vaginal discharge. Usually about one month is needed. Theoretically the completed operation should be done just as soon as possible after the Percy treatment, just as soon as the offensive vaginal discharge has cleared up. Such cases should be treated after the cauterization with strong formalin douches, 1-1000 twice a day and the direct application of strong formalin packs.

I believe there are no cases in which my previous method of doing hysterectomy, even in the early cases, without the use of the cautery can be defended. The cautery should be used in every case, remembering the theory of heat and its influence in destroying cancer cells at a distance remote from the surface. The operator must decide in each individual case whether it is better to use the modified Percy treatment for a short length of time immediately preceding the hysterectomy, or the extended Percy method and the delayed hysterectomy. The decision will be influenced by the extent and exuberance of the disease and the amount of hemorrhage, sloughing and foul discharge.

The preparation of the vagina subsequent to cauterization or in any case in which hysterectomy is to be done, should be by tincture of iodine and alcohol. The vagina should be filled with the iodine and this should be allowed to remain for two minutes. After wiping this out with gauze sponges the vagina is filled with alcohol, pains being taken afterward to wash out the alcohol with bichloride solution.

Anesthesia. During the last year I have continued to use in every case the combined spinal and ether anesthesia as described in my last paper. I am more than ever convinced that this method is of great value in preventing shock.

An intra-spinal injection of from 1-2 c.c. of tropaeocaine, 5% with suprarenin, is given between the second and third lumbar vertebrae. This injection is used as a "nerve bloc" on the theory advanced by Crile, the idea being to shut off the nerve irritation from the extensive manipulation in the pelvis from the higher centres. Ether is given at once after the spinal in-

jection and continued through the operation. In my last paper I showed charts illustrating the entire absence of shock by this method. The preparation of the vagina and the use of the cautery can be begun immediately after the spinal injection. Half an hour before the anesthesia morphine grains $\frac{1}{4}$ with atropine gr. 1-120 is given hypodermically.

I have yet to have any experience in the use of spinal anesthesia in the complete Percy method, neither have I attempted a hysterectomy under spinal anesthesia. Wertheim states that he has done the hysterectomy under spinal anesthesia in 33 cases. It may be said that the duration of spinal anesthesia is too short for the proper performance of the hysterectomy. It is my intention to use the spinal anesthesia to a certain extent in the Percy method.

The Incision. The satisfactory completion of this operation with wide removal of the parametrium and upper portion of the vagina necessitates a generous exposure of the pelvic field. The incision should be in the median line and should go down into the symphysis and always must be carried above the umbilicus. I have in most cases adopted a modification of Gibson's method of operating for low ureteral stone,—namely, cutting across the anterior sheath of the recti just above the symphysis. This alone gives appreciably more room. In obese cases I do not hesitate partly to divide the tendinous insertions of the recti muscles. It is a relatively easy matter to repair the recti by mattress stitches at the end of the operation.

Management of the Ureters. The most important technical part of the hysterectomy is the dissection and handling of the ureters, freeing them from the parametrial tissues and lifting them up and out of the pelvis, at the same time preserving their blood supply and avoiding subsequent ureteral fistula. It is not necessary to insert ureteral bougies as aids, but on the other hand, it is a distinctly dangerous procedure and leads to necrosis and fistula formation. To quote from my previous paper, "It is seldom difficult to locate the ureters if one begins to look for them high up near the bifurcation of the iliac arteries. In obese patients, and cases which are complicated by old pelvic infection with adhesions, the finding and isolating of the ureters may be most difficult."

I have perfected an original method by using tapes to retract and lift the ureters out of the way, protecting the ureteral blood vessels by rolling over a fold of the peritoneum. After the ovarian artery has been tied and the broad ligament opened up, the peritoneum being divided above the bifurcation of the iliac arteries, the ureter is exposed lying on the inner and posterior flap of the broad ligament. The internal iliac artery is then exposed and ligated with chromic catgut, after which the posterior peritoneal layer of the broad ligament is incised below the ureter midway between the bifurcation of the iliac arteries and the uterus, parallel with

the ureter and about half or three-quarters of an inch away from it, and through this slit, tapes one-half an inch wide, wet with sterile salt solution, are passed, surrounding the ureter. Traction on these tapes serves to roll a cuff of peritoneum about the ureter; this cuff can be more definitely demarcated by vertical incisions. I found that with this method I could make fairly strong traction on the ureters without damaging their blood supply.

There were in my previous paper diagrammatic drawings showing the method of applying the tapes. As I have said before, I have found the method to be of great value in dissecting the vesical end of the ureter, and also, more especially, when dividing the parametrium and cutting across the vagina. In my more recent operations I have not hesitated to use additional tapes under the ureter itself close to the bladder in the final stage of the operation, using gentle traction. I have never had a ureteral fistula, although in many cases I have made fairly strong traction on the ureters.

Prevention of Infection and Implantation Metastasis. Next to the dissection of the ureters I consider the most important part of the technique the method to prevent septic or cancerous infection. The source of infection, obviously, being the ulcerated, infiltrated growth of the cervix, and the presence of discharges and organisms from the growth in the vagina in spite of all attempts at sterilization. One of my fatalities was due to a rapid septic peritonitis. Three of my recurrences have been rapid metastases in the pelvis, presumably implantation metastases. There are only two methods to consider from the point of view of avoiding infection. One devised by Werder,¹⁰ of Pittsburg, in this country, is technically too difficult and dangerous to be considered as a routine procedure. In this method the vagina is freed very far down from the bladder and rectum, and then the uterus is pulled and pushed out through the vulva and the vagina amputated from below with the patient in the lithotomy position. This method has been called an invagination from above. Wertheim tried and abandoned it because of its great difficulty and the serious bleeding from the para-vaginal tissues and the extra time required. I, also, have attempted this method, but have given it up for the same reasons. The second method, the use of the right-angled clamps devised by Wertheim, in my opinion, is the method of choice. To amputate the vagina I use the cautery with a strong right-angled blade.

The thorough use of the Percy cautery in the preliminary preparation in the method previously described is much more important, however, than the use of the right-angled clamps.

Ligation of the Internal Iliac Arteries. In the last year I have continued to ligate the internal iliac arteries in the earlier stages of radical hysterectomy in every case and I am sure that this does not interfere with pelvic nutrition and

does not increase the chances of sepsis and necrotic sloughing, nor cause post-operative cystitis. All the cases in which I have ligated the iliac arteries have been remarkably free from complications of sepsis or cystitis in their convalescence, fully as much, if not more so, than in the cases in which the arteries were not tied. It is my opinion that the iliac ligation simplifies the operation, enables a much clearer dissection and easier freeing of the bladder and diminishes arterial bleeding deep down along the vagina and rectum.

Drainage and After-treatment. I have come to rely almost entirely upon vaginal drainage with iodiform gauze. It is possible that in a very few cases, where there has been unusual infection of the peritoneum from complicating pus tubes, or where the bowel has been injured or the bladder resected, abdominal drainage may be advisable. During the last year I have used no abdominal drainage in any case.

The after-treatment is that of any abdominal operation, except that it is well to elevate the head of the bed about eighteen inches for the first week and to use an in-lying catheter for the same length of time together with urotropin. The majority of my cases have had a surprisingly satisfactory recovery and have been singularly free from any complications.

Preliminary Report of a New Method of Operating for Cancer of the Cervix, the Posterior Vaginal Wall and Recto-Vaginal Septum. The following operation has been performed by me with technical success and will be reported in detail in an illustrated article later. I suggest it as an operation for the possible cure of cases of squamous cell carcinoma of the cervix which start from the portio-vaginalis of the cervix, and while involving the cervix to only a moderate extent, have extensively invaded the vaginal wall and the recto-vaginal septum, cases in which the cervix is but slightly involved and the main portion of the disease is confined to the vagina. This operation necessitates the removal of the uterus, parametrium and posterior half of the vaginal tube and a portion of the rectum. It should be done in two stages. This operation is no more radical in its extent than the two-stage operation for cancer of the rectum, and I firmly believe has a distinct value in such selected cases, cases which hitherto have been considered inoperable.

In the first stage the cervical and vaginal disease is thoroughly treated by the Percy method for thirty minutes. Immediately following this the steps of my radical abdominal hysterectomy are followed in every detail with this exception, that after dividing the parametrium with the cautery knife the cervix is cut across supravaginally and thoroughly charred intra-abdominally, using the abdominal water-cooled speculum. The cervix is destroyed with the cautery, leaving only a thin shell of tissue between the pelvis and the vagina. The ureters are looped up with catgut and fastened away from

the remains of the cervix and the field of the second operation in such a way that they will not be kinked. The median incision is then closed without drainage and a left inguinal celostomy made.

The second stage can be done in from three to four weeks afterward, depending upon the condition of the patient and the amount of vaginal sloughing and discharge. It can be done under spinal anesthesia if desired. With the patient in the lithotomy position the Schauta lateral incision through the para-vaginal and para-rectal tissues to the hollow of the sacrum is made and the remains of the cervix and posterior half of the vaginal tube and as much of the rectum as necessary removed.

Causes of Death and End Results in My Personal Cases. As stated earlier in this paper, I have done 42 radical (Wertheim) hysterectomies, 31 at the Massachusetts General Hospital and 11 in my private practice. In these 42 hysterectomies I have had 6 deaths as a direct result of the operation, an immediate mortality of 14+. The causes of death were as follows:—

One case died on the second day of general peritonitis, an extremely difficult case of a very obese woman; one in twelve hours of shock; one on the tenth day, cause of death not made out at autopsy; one the fifth week of iliac thrombo-phlebitis; one on the tenth day of intestinal obstruction; one in the sixth week of intestinal obstruction, for which enterostomy had been done.

Six of my cases have been done over five years ago; one of these died in thirteen months from recurrence in the pelvis with obstruction of the ureter, the five others are alive and free from recurrence from six to fourteen years. Thirty cases have been done since August, 1911. Five of these developed rapid recurrence in the pelvis within from three to six months after the operation and died a few months afterward. Five cases are alive and well over three years without recurrence. Fourteen are alive and free from recurrence from one to two years. Six have been done in the last six months and are free from recurrence as yet.

ANALYSIS OF ALL CASES OF CANCER OF THE UTERUS, BOTH OF THE CERVIX AND BODY, AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1900 TO 1914 INCLUSIVE:

Total number of cases.....	420
Personal cases of Dr. Cobb.....	98
Refused operation.....	4
Inoperable.....	63
Palliative operations.....	201
Vaginal hysterectomies.....	19
For cancer of cervix.....	14
For cancer of fundus.....	5
Abdominal hysterectomies.....	133
For cancer of cervix.....	104
For cancer of fundus.....	29
Operability.....	36.1%
264 came too late.	

ANALYSIS OF THE RADICAL (WEERTHEIM) HYSTERECTOMIES AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1900 TO 1914 INCLUSIVE:

Total number of cases.....	55
Immediate mortality.....	12 or 21.8%
Surviving cases.....	43
Traced.....	43
Operated on over 5 years ago.....	14
Alive and free from recurrence over 5 years.....	7 or 50 %
Alive and free from recurrence over 3 years.....	12

ANALYSIS OF PERSONAL CASES OF DR. COBB AT THE MASSACHUSETTS GENERAL HOSPITAL FROM 1900 TO 1914 INCLUSIVE:

Total number of cases.....	31
Immediate mortality.....	5 or 16.1%
Cases traced.....	All
Operated on over 5 years ago.....	6
Alive and free from recurrence over 5 years.....	5 or 83 %
Alive and free from recurrence over 3 years.....	10

SUMMARY OF MY RADICAL HYSTERECTOMIES AT THE MASSACHUSETTS GENERAL HOSPITAL DONE OVER A YEAR PREVIOUS TO JUNE 1, 1915.

Elizabeth C., W.S., vol. 369, p. 120, Jan. 4, 1901, age 35 years. Symptoms: pain and flowing for six months. Had been cured by a doctor. Cervical growth size of half a dollar, marked thickening and induration in left broad ligament. Iliac glands on both sides removed.

Pathological Report. Squamous cell carcinoma of the cervix; glands not malignant.

Alive and free from recurrence, June 1, 1915, fourteen years and five months.

Deborah M., Hospital No. 128406, August 6, 1902, age 37 years. Symptoms: continuous flowing without pain for two months. Moderately extensive cancer of the cervix. Uterus movable, broad ligaments not thickened. One enlarged iliac gland on the left removed.

Pathological Report. Squamous cell carcinoma of the cervix.

Death in thirteen months; recurrence in the pelvis.

Madeline V., Hospital No. 134507, S.S., vol. 83, p. 287, Oct. 16, 1903, age 48 years. Symptoms: for five months excessive flowing and pain. Extensive cauliflower growth of cervix, uterus movable. No thickening in the broad ligaments. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

Alive and free from recurrence June 1, 1915, eleven years and eight months.

Jane S., Hospital No. 140882, S.S., vol. 107, p. 143, Jan. 14, 1905, age 60 years. Symptoms: for two or three years bloody discharge, some pain, loss of weight and strength. Cervix hard and indurated, several deep ulcerations, uterus movable, broad ligaments not thickened. One enlarged gland in the left iliac region removed.

Pathological Report. Squamous cell cancer of the cervix; gland non-malignant.

Alive and free from recurrence June 1, 1915, ten years and four months.

Ethel H., Hospital No. 150169, S.S., vol. 137, p. 23, Nov. 6, 1906. Age, 27 years. Symptoms: for five months flowing and pain. Had been cured by a doctor. Badly eroded cervix with free hemorrhage. On examination broad ligaments not indurated. Bladder torn in operation. Iliac glands on left enlarged and removed.

Pathological Report. Squamous cell cancer of the cervix; glands non-malignant.

Alive and free from recurrence June 1, 1915, eight years and seven months.

Rose S., Hospital No. 159940, Aug. 24, 1908, age 25 years. Symptoms: for fourteen months constant flowing and foul discharge. Cervix hard, nodular and excavated. Uterus not freely movable. Induration in both broad ligaments. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

Alive and free from recurrence June 1, 1915, six years and seven months.

Isabelle B., Hospital No. 177394, July 25, 1911, age 35 years. Border-line case that had had previous amputation of the cervix. Broad ligaments extensively involved in the disease. Left iliac glands markedly enlarged and cancerous. Bladder opened.

Pathological Report. Squamous cell cancer of the cervix. Lymph glands metastatic. Carcinoma.

Case recovered from operation but had rapid recurrence within two months but lived two years after operation. Died July 31, 1913.

Matilda R., Hospital No. 178765, Oct. 10, 1911, age 50 years. Symptoms, for four months irregular hemorrhage, vaginal discharge and pain in back. Attempted vaginal hysterectomy because of adhesions unsuccessful. Subsequent abdominal hysterectomy.

Pathological Report. Squamous cell cancer of the cervix. Death in forty-eight hours of septic peritonitis.

Anna M. M., Hospital No. 185720, Jan. 1, 1912, age 39 years. Symptoms: for four weeks pain in left iliac region with uterine hemorrhage. Induration in the right broad ligament. Preliminary cutting and cauterization and nine days afterward abdominal hysterectomy. No glands removed.

Pathological Report. Squamous cell carcinoma of the cervix.

Case alive and free from recurrence June 1, 1915, three years and five months.

Clara A. J., Hospital No. 180385, Jan. 9, 1912, age 39 years. Symptoms for two months. No preliminary cauterization. Radical abdominal hysterectomy. Bladder opened and sutured. No glands removed.

Pathological Report. Squamous cell carcinoma of cervix.

Died in fifth week of septic iliac thrombosis.

Fannie S., Hospital No. 180965, Feb. 10, 1912, age 33 years. Symptoms: for one month previous, flowing and foul discharge. Occasionally pain in right side. Diagnostic curettage and removal of specimens.

Pathological Report. Simple glandular hypertrophy.

Nov. 13, 1912, re-entered the hospital. Radical

hysterectomy. One iliac gland on right size of bean removed.

Pathological Report. Early squamous cell cancer of cervix. Gland not metastatic.

Alive and free from recurrence June 1, 1915, two years and six months.

Laura E. T., Hospital No. 182059, April 10, 1912, age 45 years. Symptoms: excessive flowing for two months. Extensive cauliflower growth of cervix. Broad ligaments not indurated. Radical abdominal hysterectomy. Enlarged and hard glands from the bifurcation of both iliacs removed.

Pathological Report. Squamous cell cancer of the cervix. Lymph nodes not metastatic.

Recurrence in pelvis within six months. Died Sept. 10, 1914.

Mary J. M., Hospital No. 184450, Aug. 17, 1912, age 42 years. Symptoms: for two years hemorrhage, foul, watery discharge, no pain. Inverted type of cancer of the cervix. Uterus freely movable. Radical abdominal hysterectomy.

Pathological Report. Squamous cell cancer of the cervix.

Death from shock in twelve hours.

Annie O., Hospital No. 185280, Oct. 2, 1912, age 38 years. Symptoms: for three months profuse flowing, pain in back, uterus fairly movable, cervix ulcerated and eroded. One-stage operation, curette and cauterity followed by abdominal hysterectomy. Large glands from both iliac regions removed.

Pathological Report. Squamous cell cancer of the cervix. Metastasis in iliac glands.

Recurrence in pelvis within two months. Vaginal growth curedtted and cauterized Dec. 16, 1912. Death, March, 1913.

Philomena B., Hospital No. 186643, Dec. 19, 1912, age 43 years. Symptoms: for five months irregular flowing, no pain. Uterus movable. No induration in broad ligaments. Cauterization preliminary to hysterectomy. No glands removed.

Pathological Report. Adeno-carcinoma of cervix. Death in ten days. Cause of death not determined at autopsy.

Alice M. M., Hospital No. 178456, Feb. 6, 1913, age 50 years. Symptoms: for two years vaginal discharge and bleeding. Large cauliflower growth on cervix. Uterus moderately movable. Two-stage operation, amputation of cervix and cauterization three weeks previous to radical hysterectomy. No glands removed.

Pathological Report. Squamous cell cancer of the cervix.

Alive and free from recurrence June 1, 1915, two years and four months.

Bernesse S., Hospital No. 189215, May 19, 1913. Age 33 years. Symptoms: for two months irregular flowing. Uterus movable, cervix—cauliflower growth. Preliminary cauterization, radical hysterectomy three weeks afterward. No glands removed.

Pathological Report. Squamous cell carcinoma of cervix.

Recurrence in the stump of the vagina in six months. In eight months recto-vaginal fistula.

Death, July, 1914.

Mina C. McW., Hospital No. 189708, June 18, 1913, age 40 years. Symptoms: for over a year abdominal pain and excessive flowing. Loss of forty pounds in weight. Cervix extensively involved, uterus fairly movable. Preliminary cauterization. Radical operation within three weeks. No glands removed.

Pathological Report. Squamous cell carcinoma of the cervix.

Alive and free from recurrence June 1, 1915, two years.

Zenia S. C., Hospital No. 190040, July 8, 1913, age 65 years. Symptoms: for three months backache and irregular bleeding. Inverting type of cancer. Radical operation. No glands removed.

Pathological Report. Carcinoma of cervix. Death from probable recurrence in the liver within six months.

Rose A., Hospital No. 190533, Aug. 5, 1913. Age, 48 years. Symptoms: for six months irregular hemorrhage and discharge. Cervix extensively eroded. Induration in both broad ligaments, uterus not freely movable. Question of involvement of bladder. One-stage operation without cauterization. No glands removed.

No laboratory report, but case absolutely typical one of cancer of cervix.

Alive and free from recurrence June 1, 1915, one year and ten months.

Maud L., Hospital No. 190909, August 27, 1913, age 31 years. Cancer of cervix complicated by pregnancy. Radical abdominal operation; no glands removed.

Pathological Report. Carcinoma of cervix. Alive and free from recurrence June 1, 1915, one year and seven months.

Wilhelmina G., Hospital No. 191529, Oct. 1, 1913, age 44 years. Symptoms: for five months foul smelling watery discharge with occasional hemorrhage. Cervix hard and indurated. Uterus somewhat fixed. One stage operation without cauterization. No glands removed.

Pathological Report. Squamous cell carcinoma of cervix.

Alive and free from recurrence June 1, 1915, one year and eight months.

Florence A. D., Hospital No. 192734, Dec. 9, 1913, age 55 years. Symptoms: for four weeks hemorrhage. Hard nodular mass in the cervix extending on posterior vaginal wall, induration in left broad ligament. Radical operation preceded by cauterization. No glands removed.

Pathological Report. Squamous cell cancer.

Lived for two months and died of intestinal obstruction, which necessitated enterostomy.

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INOPERABLE UTERINE CARCINOMA. A METHOD OF APPLYING HEAT IN ITS TREATMENT.*

BY J. F. PERCY, M.D., GALESBURG, ILL.

THE basis of my technic has back of it the experiments of a rather large number of laboratory workers who have shown that the carcinoma cell cannot be successfully transplanted after an exposure of ten minutes to a temperature of 113° F. (45° C.). Normal tissue cells, these experiments also show, will bear a temperature of 132° F. to 140° F. (55° C. to 60° C.) without being devitalized. Physicians and surgeons for all time have been aware of the fact that the local application of fire is the only agent that has had any real inhibitory effect on the progress of a gross mass of cancer. Only the manner of using it has been at fault.

Experimental work has shown that a low degree of heat has a much greater penetrating power in a mass of cancer than has a high degree.¹ High degrees of heat carbonize the tissues, inhibiting penetration; low degrees of heat coagulate the tissues, encouraging heat dissemination. High degrees of heat, with the resulting carbon core, prevent drainage in the cancer mass. This permits, in a certain number of cases, the absorption of an excessive quantity of broken down cancer cells, which are dangerous to the life of the patient. When the temperature in the heating iron is the right degree for the greatest penetration, its shank can be wrapped with surgeon's cotton and remain there for forty minutes, or more. The color or texture of the cotton will not be altered in any way by this degree of temperature; and this merely emphasizes the fact that a burning temperature is not used.

Another important consideration in the use of what I have called elsewhere my "cold iron" is the much lessened danger to the rectum, the bladder and the ureters. It is most unfortunate to the correct use and understanding of this technic that it is thought and spoken of as a "cautery" operation. A cauterizing temperature (cherry red or higher) only defeats. I repeat, the effort to get a maximum penetration of the heat.

To the novice, in the application of this technic, one of the surprises in its application is the slowness with which the heat penetrates the cancerous mass. When the mass in the pelvis is grasped from the abdominal side, and the heating iron passed up to the fundus of the uterus through the water-cooled speculum in the vagina, twenty to forty minutes are frequently required before an appreciable degree of heat-change is noted in the tissues invaded by the cancer. This frequently leads the operator, unfamiliar with the most effective way of applying

the technic, to turn on more heat. If this is persisted in, a carbon core is formed, which still further prevents the dissemination of heat in the cancerous mass, and, as a result, more heat is turned into the heating iron until a dangerous degree of temperature is developed.

Not the least of the beneficial effects of the heat, in comparison with the use of the knife in any degree of development of uterine carcinoma, is the fact that the heat at once seals the lymphatics and blood vessels and cuts off the nerve supply. This not only limits the real dangers from the further dissemination of cancer, but prevents infection. I am also convinced that it has much to do with the marked freedom from suffering and shock, which is the rule in these cases following the application of heat.

I am not satisfied that this technic should be followed by either panhysterectomy, or a Wertheim. When a recurrence develops, following either of these operations, my chief objection is that there is not enough tissue left in which heat can be disseminated. The most hopeless class of cases that I see are those in which a Wertheim has been attempted, or a panhysterectomy performed, and recurrence has developed in the stumps of the broad ligaments, in the pelvic fascia, along the ureters, in the base of the bladder, or in the vaginal walls. One thing, however, is quite certain, and that is, if either of these operations is decided upon as the best surgical procedure in a given case, the application of heat first, applied according to my technic, must of necessity add immeasurably to the results in the way of preventing the dissemination of cancer cells by the knife.² This technic correctly applied certainly enlarges the field of the Wertheim operation. It is the only technic that effectively destroys the gross mass of cancer in a way that is not dangerous to the life of the patient. It leaves only the small points of metastases to be cared for by the resistance which the body has already developed from the presence of the gross mass. If this is not sufficient, then possibly a Wertheim, performed by one qualified to do it, may be indicated; or, better still, the x-ray, preferably, I believe, from the Coolidge tube, may be given by the deep penetration method.

Many methods for destroying cancer have been worked out. Some of them will assume greater promise of effectiveness in caring for disseminated small foci, after the destruction of the gross mass by the technic here outlined. If no such foci are in evidence, then, of course, the tendency to recurrence of the growth in distant tissue is lessened.

In the application of my technic, opening the abdomen is a very essential factor in its successful development. Only when the gloved hand grasps the malignant mass in the pelvis, can be determined with safety and certainty the necessary degree of heat to be applied, and where to apply it.

In about 50% of my cases the abdomen is

* A clinical lecture by the author, which preceded his demonstration of his technic of applying heat in uterine carcinoma. Delivered at the Massachusetts General Hospital, April 21, 1915. Upon invitation of the Boston Surgical Society.

opened more than once for the reapplication of the heat. In each of two of my cases the abdomen has been opened five times. In one of these the fifth operation was done "on suspicion" that a recurrence was developing in the pelvis. It could not be determined by examination through either the vagina or rectum. A malignant mass was found springing from the pelvic fascia high up on the left side over the ureter and iliac vessels. The heat treatment was applied as thoroughly as the location of the disease permitted, and the abdomen closed. This patient is doing amazingly well, seven months after the date of the fifth opening of her abdomen. She is still under treatment with the deep penetration method of the x-ray from the Coolidge tube. The other case mentioned above is also doing well, and is being treated in the same way by the Coolidge tube.

I mention these two cases, first, to call attention to the fact that the heat can be applied to a malignant mass in close proximity to blood vessels, because there is little danger of damaging important vessels as long as the heating iron is not brought directly into contact with them. The explanation is that the circulating blood maintains the temperature of the vessel wall in much the same way that my water-cooled speculum protects the vaginal walls. The second important consideration, where the abdomen is likely to be opened more than once, is that of abdominal adhesions. If, at the second or subsequent abdominal sections, extensive adhesions are encountered, the operative results outside of the cancer technic are in a fair way to be bad.

I have succeeded in practically eliminating abdominal adhesions by the following technic: first, a ten-yard sponge of baby flannel, six inches wide, wrung out in a 2% solution of sodium citrate in normal saline, is used.³ The abdominal walls are elevated as much as possible during deep anesthesia, and the intestines and omentum are pushed up out of the pelvis and under the upper abdominal walls *without brushing or traumatizing either the visceral or parietal peritoneum*. The edges of the abdominal incision are protected by towels from contact with the sodium citrate sponge for the theoretical reason that it may interfere with good union. All blood is kept out of the abdominal cavity for fear that its organization may result in adhesions. The baby flannel sponge is less likely to traumatize the endothelium than the usual gauze pack. In addition, it more completely excludes the air from the abdominal cavity.

After a rather large experience with cases in which the abdomen has been reopened more than once, I am convinced that these five factors—the sodium citrate, the flannel sponge, lessened traumatism, exclusion of air and exclusion of blood—are of supreme importance in preventing intestinal adhesions.

I also attribute to this technic for preventing abdominal adhesions, an important place in the explanation of the freedom from shock, gas

pains and general suffering, which usually marks the convalescence of my cases of operated uterine carcinoma. This holds even in those cases in which the abdomen has been open two or more hours, as is sometimes true where there is extensive involvement of the pelvic structures.

TECHNIC.

The patient is placed on the table in such a manner that the buttocks *will remain* over the lower edge of the table. This position can be maintained only when the trunk is supported by shoulder braces. The head is dropped so that the vaginal field is brought within easy access of the operator who is to apply the heat through the water-cooled vaginal speculum. The legs are elevated and separated as in any vaginal operation. In elevating the legs, they should not be thrown so far back on the abdomen as to interfere with the freedom of the operator working above. The abdomen is first opened, and the extent of the pelvic and abdominal metastases (if any) determined. Then the intestines are packed off, as already detailed, and the internal iliac and ovarian arteries tied. I have lost four patients from late hemorrhage coming on about two weeks after the application of the heat, where the iliacs were not tied. Since tying the vessels, I have lost no patients from hemorrhage or any other cause, following the operation. In two recent cases the remains of the uterus came away as a great slough, leaving a healthy granulating surface.

While the vessels are being tied, the assistant can dilate the vagina with the vaginal dilator. This dilatation should be persisted in until the vulvar orifice can easily accommodate the water-cooled vaginal speculum. In my own clinic, I have found it useful to have at least three of these specula. The woman who has never borne children, and the woman with a very deep relaxed vagina, of necessity require two different patterns of instruments; even though the vaginal dilator solves the problem in many cases, making the vagina fit the speculum rather than having many specula to fit the vagina.

The instruments devised to most effectively apply this treatment consist, first, of a set of four electric heating irons, which are made either for the 110 or 220 volt current. These heating irons come very near to fulfilling the requirements for perfect instruments in furnishing heat for the purposes of this special technic. They also make ideal general purpose cauteries for heavy or light work. They are practically never out of order, and require no special care. In addition to the heating outfit, the average case for treatment requires a vaginal dilator, a water-cooled speculum, a vulsellum forceps and a wire retractor. The two latter instruments are useful in bringing the outer circumference of a large mass of cancer within the reach of the heating iron. When there is extension of the cervical mass into the vaginal

walls, the water-cooled speculum open at the top gives one a most effective means of applying the heat in its destruction.

My own method of dealing with this condition is to put the heating iron on the bottom of the water-cooled speculum, and place a thermometer in the urethra. When a degree of heat sufficient to maintain the temperature in the urethra at 120° F. (49° C.) is obtained, the thermometer is removed and the speculum slowly rotated until the entire vaginal surface has been treated by the heat. This degree of heat, when sufficiently applied, will alter the color of the vaginal mucous membrane to a sickly yellow, from which it will recover without the formation of scar tissue.

In applying this treatment, I wish to emphasize four very important essentials, in order to insure the greatest probability of success. First, open the abdomen; second, introduce the heating iron through the vaginal or cervical mass to the fundus of the uterus, and hold it there until everything abnormal is too hot to hold in the hand enclaved in a medium weight rubber glove; third, apply the heat until all the fixed carcinomatous tissues are freely movable; fourth, use a low degree of heat. I want to reemphasize points two and three. It can be readily seen that if the heating iron is aimlessly moved about, no area of tissue will become sufficiently heated to destroy the carcinoma present. It is absolutely essential, therefore, that the heating head be held in one place until that particular area is sufficiently hot. It can then be moved to another area.

One of the surprising things is the difficulty encountered in getting the heat through the cancerous mass in sufficient degree to be effective. It cannot be done quickly either with a high or low degree of temperature, unless the malignant mass is very small. The heat must be applied until all the fixed pelvic structures are as freely movable as they were normally. This means the inflammatory, as well as the tissues invaded by the malignant process. If any of the pelvic structures remain as they were found before the heat was applied, it can readily be seen that the cancer cells which they may contain have not been altered by the treatment. It requires judgment and experience to do what is here insisted upon as necessary; but the failure to do this will prove to be the stumbling block to the successful and effective performance of this method of treatment.

The technic above outlined removes the gross malignant mass at one sitting. It leaves the small points of metastasis that may remain to be treated by one or more of the many recognized methods of treatment: operative, x-ray, radium or serum. But more than all else, it permits, I believe, the acquired but insufficient resistance, which must and does develop during the progress of the cancerous invasion, to assert itself. From my experience, I am convinced that this acquired resistance, although obviously insuffi-

cient while the gross mass is still present, is in many cases capable of clearing up small points of metastasis after the destruction of this mass.

Finally, we should not forget that many of these patients are dying not from cancer, but from the secondary invasion of destructive septic organisms into the malignant mass. We see the same destructive effects from these bacteria in the last stages of tuberculosis and syphilis. Inoperable cancer, plus the secondary invasion of sepsis-producing organisms, make a picture only too well known for its misery and hopelessness. Heat generously applied, together with the final beneficent results of the natural resistance already developed in the blood, in many cases changes this mass of living despair into one where hope and comfort abound.

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A CASE OF PYELONEPHRITIS, COMPLICATED BY ADENO-CARCINOMA AND CHYLURIA.*

BY ELIZABETH T. GRAY, M.D., BOSTON,

Visiting Surgeon to New England Hospital.

THIS case which I wish to report is unusual for two reasons—first the adeno-carcinomatous involvement, and second the condition of chyluria which was found.

Mrs. E., widow, 74 years old, born in Maine, was admitted to the hospital April 1. Her family history shows that her mother died of diphtheria, and her father of "cancer of the lip." She has had one child and no miscarriages. Menopause at about 40.

She has had more or less trouble with hemorrhoids during her adult life, these becoming ulcerated at several different times. About 14 years ago the trouble with the kidneys began. She was told by a physician at that time that she had a floating left kidney.

Ten years ago had an abscess somewhere in the urinary region with a discharge of blood and pus from the bladder; but apparently entirely recovered from this condition after a few weeks.

Since then has had several attacks of pain in right hypochondriac and lumbar regions, each lasting from 2 to 5 weeks and occurring every 9 or 10 months. These attacks have been more frequent during the last two years.

Three weeks ago had an attack, during which the pain was almost unbearable, the right side being extremely tender to touch; but she never has had nausea or vomiting with her attacks.

* Read before the New England Hospital Medical Society, May, 1915.

Upon examination we found Mrs. E. cachetic in appearance, thin, almost emaciated, and in a most critical condition.

Temperature 103, pulse 100.

The right abdomen showed a circumscribed, fluctuating mass extending from the line of the ribs to the iliac crest and in as far as the border of the right rectus. The lumbar region showed nothing abnormal. This mass was so tender that examination by palpation was very unsatisfactory.

Examination of catheterized specimens of urine showed (she passed about 500 c.c. in each 24 hours):

	April 2	April 3	April 4
Sp. gr.	1011	1023	1035
Color	Pale straw	Deep amber	Reddish brown
Reaction	Acid	Acid	Acid
Albumen	trace	Trace	Trace
No sugar	No sugar	No sugar	

Sediment: Much fat, so that a stain was left on sides of the glass; a few hyaline casts, and many pus cells. Blood count showed leucocytosis of 24,000.

X-ray Report: "The examination of the right abdomen from crest of ilium to lower ribs shows no outline of kidney. There is present a dense shadow that is very much mottled, but leaves no definite outline." A diagnosis was not made, but further information was asked, especially about the chyluria.

As the patient was in such a critical condition, I did not think it advisable to have the ureters catheterized. From the clinical findings I made a diagnosis of either a pyonephrosis or a pyelonephritis.

On April 5 the patient was prepared in the usual way for abdominal operation.

As the mass was so large, I decided to use the Israel incision, i.e. the incision beginning at the middle of the last rib, curving forward and downward and then outward, parallel to the crest of the ilium.

Immediately a large quantity of very foul-smelling pus escaped through the incision. I could not find a kidney upon digital examination, but brought out large quantities of bloody debris, and among this debris several stones, the largest of which measured 1½ cm. by 1 cm.

The cavity was emptied by the hand, and then thoroughly irrigated with normal saline, the extremities of the incision united with through-and-through silkworm gut sutures and a double cigarette drain introduced.

The patient made an uneventful recovery, the temperature on day after operation being 102.5 at 4 a.m. and at 4 p.m. 99.4. The following day the temperature was normal and remained so during convalescence.

The drainage tubes were removed permanently on the tenth day. The patient was discharged May 11 in good general condition and with the incision practically closed.

The amount of urine passed for the first four or five days after operation was very small, average about 200 c.c. in the twenty-four hours, but with diuretics and plenty of water the amount increased until she passed about 1200 c.c. The urine showed neither pus, blood nor fat after the operation.

Pathological Report from Tufts College Laboratory. (Unfortunately this is not complete as the calculi were lost and so could not be examined).

The report reads: Specimen shows debris of right kidney in firmly walled-off pockets, and consists of masses of soft reddish grey friable tissue with abundant clot. Diagnosis, adeno-carcinoma. Swabs from pus show streptococci and staphylococci.

This case was probably a pyelonephritis rather than a pyonephrosis of the right kidney. A pyelonephritis presupposing a suppurating inflammatory process beginning in the renal parenchyma, which may or may not involve the pelvis; the process being either continuous or consecutive; while a pyonephrosis means simply a dilatation of the pelvis and calices with pus. These processes are always of bacterial origin and may be a hematogenous and descending, or urogenous and ascending.

The hematogenous form may follow any of the acute infectious diseases or simple local affections like furunculosis or tonsillitis. Usually this form begins in the cortex, from which the process extends. When the surface of the pelvis has been eroded by a stone the infection continues downward and produces pyelitis.

The colon bacillus is the organism most frequently found, but mixed infection, showing a variety of micro-organisms, is common.

Stone in the kidney or ureter is caused from the inability of the urine to retain in solution certain of its constituents, i.e. the urates of Na. and NH₄, uric acid,

oxylate } lime cystin and xanthine
carbonate }

Secondary calculi usually consist of phosphate of lime and develop only in a kidney already the seat of infection.

Often a stone may be carried either in the cortex or pelvis for many years, leading to absolute destruction of the kidney without giving a sign of its presence, renal colic being a very inconstant symptom in a large number of cases.

When infection takes place, a persistent pyuria is present.

Diagnosis of stone can be made fairly easily by the x-ray, but to obtain a satisfactory plate is still one of the difficult feats of radiography. If the x-ray plate is good, it should show the last two ribs, the transverse processes of the lumbar vertebrae and the shadow of the psoas muscle plainly. Then the shadow of even a normal kidney should be seen distinctly and is useful in determining the presence of the second kidney. In enlargement from tumors or distention a positive shadow should always be obtained.

The presence of a stone is revealed by a distinct sharp shadow upon the kidney shadow, but this should be interpreted as a stone only where it is associated with other clinical evidence, because calcified lymph nodes, the thickened tip of an appendix and buried sutures infiltrated with lime salts, after a previous laparotomy, have been mistaken for kidney or ureteral stones.

Tumors of the kidney are rare, only 2% of all

tumors being found in this location, the most common malignant form being the sarcoma. True adeno-carcinoma of the kidney is practically unknown, but quite frequently in conjunction with carcinoma, adenomatous masses are found, and to this condition the term adeno-carcinoma is given.

Again, malignant disease of the kidney is oftenest found in childhood; from 30 to 52% being quoted as the proportion found during the first ten years of life.

Adult life is practically exempt, and the liability increases again in old age.

Tumors of the kidney occur oftenest in men, but are more often inoperable in women, as the earlier symptoms of renal new growth do not attract so much attention in women as in men.

Dermoid cyst, fibroma, carcinoma and adeno-carcinoma are the rarest forms of tumors in the order given above. Adeno-carcinoma usually begins in the cortex, and may destroy the entire kidney without producing any increase in size or alteration of form. Metastases occur, via the blood vessels, in the liver, lungs, retro-peritoneal glands, second kidney, intestines and pancreas.

The prognosis is uniformly bad, most cases being ultimately fatal.

Symptoms: Hematuria, pain and usually tumor. Hematuria is the most common initial symptom, occurring in 70% of the cases. Acute pain in one or both kidney regions is sometimes the earliest symptom. Cachexia usually does not appear until an advanced stage of the disease. Fever does not often occur. The urine may have the color of pure blood or may vary from this to pale straw color; it is clear in about 70% of the cases.

Israel describes worm-like bodies in the urine, which he believes are pathognomonic of malignant tumor. They usually occur in a faintly bloody or clear urine, and consist of a fibrinous ground substance, in which blood cells, leucocytes, fat droplets and swollen epithelium are embedded.

Tumors of the kidney are comparatively slow in growth, often taking from 10-15 years.

Chyluria is a peculiar condition of the urine, in which it presents a more or less milky appearance and contains fat, with more or less albumen. The urine is usually acid, and the sp. gr. varies from day to day. It closely resembles the urine of pyuria, but can be distinguished from it by the microscope, which shows much fat in a fine state of emulsion, leucocytes and red blood corpuscles.

Chyluria is often associated with elephantiasis and lymphangiectasis. Chylous urine may be of parasitic or non-parasitic origin.

The parasitic or obstructive is due to the obstruction of the kidney lymphatics by the *filaria sanguinis hominis* and then their rupture, and the discharge of chyle into the kidney.

The cause of the non-parasitic form is obscure; possibly it is a symptom of malignant tumor of the kidney.

LIMITATIONS OF THE RADICAL OPERATION FOR CERVICAL CANCER OF THE UTERUS.

BY HENRY T. HUTCHINS, M.D., BOSTON.

THE doctrine of the early diagnosis of cancer of the cervix has now become sufficiently widespread in almost every community in the civilized world. No medical student graduates from a decent school nowadays who has not had the importance of examination for early cancer thoroughly impressed upon him. Physicians in small communities have heard of it and thoroughly understand it. That many physicians are negligent and lazy in this regard is true and most unfortunate, and for this reason the doctrine should be continually brought before the medical profession.

A sufficient number of surgeons in every city of considerable size have perfected themselves in the performance of a radical operation for this disease so that no woman need lack for proper surgical treatment.

The question of the operability of a certain case, when once it is seen by a competent surgeon is, however, still open for discussion. On this point there is a difference of opinion. One surgeon will operate on every case of cancer of the cervix regardless of its extension, evidently going on the principle that one cannot make a bad condition much worse. Another surgeon will operate only when a radical removal is clearly possible. How then should operability be clearly defined and what should be done for inoperable and border-line cases?

No cases are more distressing than those of cancer of the cervix upon which a radical operation has been performed and the cancer not completely removed and possibly a vesical, rectal or ureteral fistula left. Invariably when this takes place, the patient herself and her relatives are unanimous in declaring that they would much rather that nothing had been done or that death under the anesthetic had relieved the sufferer.

We all realize that it is not possible by digital examination to determine the operability of every case—that the exploratory incision is frequently necessary; but having made this incision, a conscientious surgeon should then know whether a clean operation can be performed or not. It is at this point that true surgical judgment should be employed and it is here that more surgeons should be willing to stop and back out. It is much easier, once the abdomen is opened, to plunge ahead, almost invariably get into serious trouble, and leave the patient with distressing sequelae, than to close the abdomen and start immediately palliative treatment. We must look at these inoperable or borderline cases, as we should at every case, entirely from the patient's standpoint. If we cannot be sure of having the patient better off with at least a fair chance of a cure, then the complete operation should not be done. A woman

relieved of bleeding and pain, but completely disabled by a urinary fistula and in whom the cancer has not been entirely removed is indeed a pitiable sight.

What I wish to urge then is conservative radicalism in these borderline cases. If doubt exists as to whether a case is operable or not, always open the abdomen and find out, thus giving every case the full benefit of the doubt. The operability can be determined immediately the abdomen is opened. If the base of the bladder is involved, if the rectum is involved, if the carcinoma extends laterally to the wall of the pelvis and surrounds the ureter, and if the iliac glands are involved, only a minimum of these cases will be cured by radical operation and a large number will be left in a hopeless condition. In such cases it is my opinion that we shall better serve our patients by not attempting the radical operation. A resection of the bladder, a transplantation of the ureters, or a resection of the rectum *without* the complete removal of every vestige of cancer, are unjustifiable procedures.

What then shall we do to relieve these cases, leave our patient in better condition and prolong life with the maximum degree of comfort? We have at hand many procedures by which this can be accomplished without injury and incapacitating sequelae. Providing after the abdomen is opened the case is found too far advanced for a clean radical operation, both internal iliae should be tied and the abdomen closed. This will help to relieve the bleeding and in some measure delay the spread of the growth. The cervix should then be attacked with the slow cautery, taking great care not to char the tissue by too high a degree of heat and apply a low degree of heat for one half to one hour. The heat may be applied at intervals of from two to three weeks. By this means we completely relieve the bleeding and foul discharge by a surgical procedure which involves the minimum of shock to the patient, accomplishes everything that can be done and avoids the unnecessary and distressing fistulae which, even in the hands of the most competent, are altogether too frequent.

It is far from my purpose to deify the employment of the radical operation whenever that operation can be clearly defended, but I feel that in many cases the operation is being performed when the chance of a cure is not even probable, and that by doing so we cannot persuade ourselves that we are giving our patients the greatest chance and are far from giving them the *only* chance. The prolongation of life in comfort is in the great majority of cases to be obtained by the less radical procedure. The advent of Dr. Percy's principle of the long continued application of a low degree of heat will be a great boon to this class of patients.

The campaign for the early examination and diagnosis of cancer must be continued with vigor and the radical operation performed on

all such cases, but in the cases where the early diagnosis has not been made, and those form a large group at present, let us adopt measures which give the maximum of relief and comfort for the remainder of life and the minimum of mutilation, rather than carry the radical procedures to such unfortunate, unfruitful and unsurgical extremes. If we cannot do good let us not do harm and thus bring discredit on radical surgery and attempt to ease our consciences by the plain falsehood that "we have given the patient her only chance."

Book Reviews.

Alone in the Sleeping Sickness Country. By FELIX OSWALD, D.Sc., F.G.S., F.R.G.S. London: Kegan Paul, Trench, Trübner & Co., Ltd. 1915.

In this delightful volume the author depicts the habits and characteristics of the Kavirondo negroes among whom he lived alone at close quarters on the cliffs of the Victoria Nyanza in the heart of Africa close to the equator. Though only three-weeks' journey distant from London, he was there in a primitive civilization essentially identical with that of the early Caledonians of Scotland of whom Herodian writes "They know not the use of clothing but encircle their necks and loins with iron, deeming this an ornament and an evidence of opulence."

The primary object of the author's journey was not medical nor ethnological, but to pursue a geological investigation on behalf of the British Museum of some miocene deposits on the east coast of the lake. This research, however, carried him through the heart of the sleeping sickness country and in two chapters devoted to this subject he describes and discusses the disease, its relation to the conditions of the inhabitants and the means of its treatment and prevention from the valuable point of view of a non-medical scientist. His tastes and interests are refreshingly catholic and he writes with equal fascination and concern of the climate, the geography, the customs of the people, their music, the geology, fossils, scenery and poetic beauties of the land through which he traveled and in which he worked. The book is abundantly illustrated with a colored map and with over seventy plates from the author's photographs. It is a work for the laity as well as for the profession and many a physician might gain by reading it a profitable awakening of his interest, not alone in sleeping sickness, but in the manifold objects and interests which appeal to the scientific and human mind in lands beyond his own.

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THE PREVENTION AND CONTROL OF CANCER.

AT the annual session of the Medical Society of the State of Pennsylvania in Philadelphia in 1909, one of the sessions on Sept. 29 was devoted to a symposium "Looking to the Increased Knowledge of Cancer." At this session a series of ten affiliated papers on various aspects of the topic of cancer was presented, and these papers were published in the issue of the *Pennsylvania Medical Journal* for November of that year. As a result of this meeting and of the growing realization of the profession of the steadily increasing prevalence and menace of cancer, the Pennsylvania Medical Society appointed a commission on cancer to study and investigate the subject and to report on methods of education in the prevention and control of the disease. The chairman of this commission was Dr. J. M. Wainwright of Scranton, Pa.

At the session of the Pennsylvania Medical Society in Harrisburg in September, 1911, this

commission presented a report, detailing the progress of its work up to that time.

"The principal work in connection with public education has been the preparation of a series of six short articles giving the information that the laity should have concerning cancer in various portions of the body. These will be sent to all the leading newspapers in the state with the hope that beginning next month all the newspapers will publish one article simultaneously each week.

"The most elaborate work that the Commission has undertaken has been the gathering of statistics during the past year that indicate as nearly as possible the condition in which the cancer patients come to the surgeon. Four hundred reports were received from surgeons all over the state, and while the total number is not large the very wide distribution of the source makes the summary of these statistics of considerable value, and tables giving the more important facts are printed herewith.

"Of these cancer cases 146 were males, 236 females, the remainder unspecified. The average age for the entire number was 51 years. A further analysis of these statistics can best be made by dividing the total number into superficial cancers and deep-seated cancers. The first striking result of this tabulation is that even in the superficial cancers only 68% are operable when the patients come to the surgeon, and of the deep-seated cancers only 48%, or less than one-half, are operable when they come to the surgeon. Furthermore, even these figures are undoubtedly much lower than the actual facts. This is because nearly every busy surgeon will see many cases in consultation or in the admitting room of a hospital that are so clearly inoperable that he returns the patients at once to their family physician or passes them along to someone else for palliative treatment and does not stop to make any record. The surgeon's records, therefore, are made up mostly of cases on which he does operate, and most of the other cases do not come to record at all. Even setting aside this source of error it is a distressing fact that only 68% of superficial cancers and only 48% of deep-seated cancers are operable when the patients come to the surgeon.

"Another important fact derived from these reports is that in 39% of the superficial cancers and in 46% of the deep-seated cancers there has been a preancerous condition or a chronic irritation. In other words, in almost one-half of the patients that are sent to the surgeon with a fully developed cancer, there has been a previous condition which might have been cured and cancer might not have developed."

Following the statement of the commission there appeared in the report a paper by Dr. Longnecker on "Some Considerations of the Cancer

Problem"; and a further one by Dr. William L. Rodman, now president of the American Medical Association, on "The Early Diagnosis of Cancer." In conclusion the report stated that the reasons for undertaking this collection of data were, first, to convince everyone that "the only efficient treatment we now have for cancer is nearly always so far delayed that its real benefit reaches a comparatively small number; the much larger number are needlessly sacrificed. We believe that the reports as tabulated above demonstrate this beyond the need of further argument. Secondly, this work was undertaken to show if possible just where the greatest responsibility lies. It is, of course, to be proportioned to the medical profession on the one hand and the general public on the other. There is the greatest possible room for improvement in both, but of the two it would seem that the medical profession should show a marked improvement first. We cannot view with complacency the fact that, as a general average, cancer patients have been under the care of their family physicians for over a year before they applied for a radical cure. We believe that this state of affairs is somewhat of a reproach to the medical profession and we believe that we have indicated that after-commissions will find their most useful work in improving the general attitude of the medical profession itself towards cancer."

For five years the cancer commission of the Pennsylvania Medical Society has actively continued the work thus begun and has published from time to time reports of progress and papers bearing on different aspects of the subject. Finally in January of this year the society formulated a plan to extend this work by securing the coöperation of medical journals throughout the United States, each of which should publish in July a special issue devoted wholly or in part to topics connected with cancer. Seventy-three periodicals accepted this invitation and agreed to enter into the plan; and the present issue of the JOURNAL represents its contribution towards this movement.

As a leading article we present an address prepared for delivery by Dr. Edward Reynolds of Boston at the annual meeting of the Massachusetts Medical Society last month. In this article Dr. Reynolds emphasizes some of the newer views of cancer and their present relation to the responsibility of the practitioner. It is significant that of the four other special

articles on cancer which compose the remainder of this issue, three deal with different aspects of cancer of the uterus. This selection was an intentional point of emphasis, since this form of cancer is not only numerically the most frequent but is practically the most preventable of all types. A very large proportion of cancers of the uterus originate in neglected and unrepaired lacerations of the cervix. Habitual care and timely repair of all such lacerations would practically eliminate such cancers of the uterus, leaving only those originating in the body or fundus. This, of course, can be made possible only by the education of the public to an appreciation of the danger and preventability of cancer of the cervix and education of the profession to an appreciation of the importance and the proper methods of observation and treatment of the lacerated cervix.

At the beginning of his address Dr. Reynolds calls attention to the work of the American Society for the Control of Cancer during the past two years. This Society has recently made a special study of cancer conditions in New England, a region in which cancer is more prevalent, especially among the older Yankee families, than in any other part of the country. The Society has recently issued as a circular an abstract from the *Quarterly Bulletin of the New Hampshire State Board of Health* for January, 1915, containing a review of cancer in that state, together with admirable advice to the public in regard to the necessity of early recognition and operative treatment. The article in which this review is presented is by Dr. Irving A. Watson, secretary of the New Hampshire State Health Department.

"Dr. Watson reviews the statistics of cancer in New Hampshire from 1884 to 1913, and shows that there has been a steady increase in the number of recorded deaths from 210 in the first year to 453 in the last year of that period. The total number of deaths from cancer for the entire period of thirty years was 9096. Of this number 3075 were males and 6021 were females. During the period reviewed the cancer death rate in New Hampshire increased from 5.93 to 10.42 per 10,000 of the population. Some people hold that much of the apparent increase of cancer is due to more correct diagnosis and better certification and statistics, but Dr. Watson does not believe that these factors can alone account for the increase of the disease in New Hampshire.

"The State Board of Health has therefore joined in the efforts which are now being made for the control of cancer by educational meth-

ods. The State Laboratory has also undertaken to assist the physicians in the early recognition of the disease by examining suspected cancerous material whenever submitted.

"The American Society for the Control of Cancer has undertaken to conduct a national campaign of education in regard to this disease, following the example and methods of the campaign against tuberculosis. The National Society is coöperating with state and local boards of health, medical societies, women's clubs, and other organizations in order to disseminate the latest knowledge about malignant disease. If the people of New Hampshire would carefully read and take to heart the sound advice given by the State Board of Health it may well be expected that the mortality from cancer in New Hampshire will begin to show a decrease."

In another column of this issue of the JOURNAL we publish a further statement by the secretary of the American Society for the Control of Cancer on "The Organization of National and Local Forces in the Campaign against Cancer." This statement presents most effectively the methods suggested and in part actually adopted by the Society in its work thus far, and should emphasize to readers the importance of organized efficiency and coöperation in dealing with this problem of public health.

Finally, in a communication from Dr. William Seaman Bainbridge of New York, we record what is perhaps the best summary that has appeared of the tenets to be enjoined in the dissemination of education on the subject of cancer. Above all, it should be remembered that this education needs to be equally of the profession and of the public, making the one capable and the other willing to perform its part in this movement for the prevention and control of one of the most relentless and inexorable scourges of mankind.



THE DUCTLESS GLANDS AND DIABETES.

THE relationship of the ductless glands to diabetes presents an interesting and instructive problem. The liver is concerned with sugar metabolism, the sugar being stored in the liver as glycogen when there is an over-supply of sugar in the body. If the supply of sugar is lowered or there is no intake or there is an over-use—in other words, when for one reason or another, the demand is greater than the supply—the liver cells proceed to produce sugar from proteids, and, in rare cases, even from fats. It

must be remembered, however, that the formation of sugar in the liver is controlled by the nervous system, certain ductless glands and their hormones. The rôle of the various endocrinous glands is being understood. This subject is taken up in an interesting manner by Croftan (*Illinois Medical Journal*, Vol. xxiii). A review of the most important facts may here be given.

The pancreas inhibits the conversion of glycogen into sugar and its supply to the body, so that underactivity or absence of activity of the pancreas from any cause, disease or experiment, causes hyperglycemia and glycosuria, with the breaking down of protein and fat to sugar, which is at once discharged into the system. The adrenal glands stimulate the conversion of glycogen into sugar, and therefore have an action antagonistic to the pancreas. As proof we may mention that adrenalectomy is followed by hypoglycemia; in Addison's disease sugar tolerance is high and adrenalin glycosuria (from experimental injection of adrenal) is almost impossible. The thyroid gland stimulates adrenal activity, but it is antagonistic to the pancreas. For example, thyroidectomy leads to increased sugar tolerance and absence of adrenalin glycosuria due to hyperfunction of the pancreas; in myxedema there is increased sugar tolerance and absence of adrenalin glycosuria, while in thyroid feeding and in Basedow's disease there is decreased sugar tolerance and even glycosuria. That the parathyroids inhibit thyroid activity seems to be proved by the fact that there is reduced sugar tolerance and easily produced adrenalin glycosuria following parathyroidectomy; no glycosuria occurs after pure thyroidectomy, but when the parathyroids are removed in addition to the thyroids hyperglycemia and even glycosuria soon appear. The pituitary or hypophysis is antagonistic to the pancreas, but it is overactive in adrenal hyperfunction and in thyroid hypofunction. We find, for example, glycosuria to be common in acromegaly, whereas the sugar tolerance is increased in Fröhlich's adiposo-genital dystrophy.

From the work done in this field and from the results obtained, Croftan justly concludes that the ductless glands are intimately related to carbohydrate metabolism. Furthermore, the sympathetic nervous system directly or indirectly through the adrenals (which are parts of the "chromaffin system" scattered through the sympathetic nervous system) seem largely to govern these activities, as proved by experiments

with pique, which acts centrally on the sympathetic apparatus, and adrenalin, which acts peripherally on the sympathetic apparatus. It has also been found that where the ductless glands inhibit or stimulate, there is a reversibility of action, so that the two glands antagonize or enforce one another mutually. It may be asserted, as Croftan says, that "the whole process is concerned with establishing and maintaining under widely varying conditions the balance that must normally exist between the autonomous and sympathetic nervous system in order that the somatic processes of life may be properly carried out." From the curative standpoint Croftan does not believe that the administration of gland products promises much for the future, since, after all, it is but temporary substitution therapy. He admits that grafting of deficient gland elements or removal of hyper-functioning glands are possibilities.



RECENT MEDICAL MEETINGS.

DURING the past month there has been an unusually large number of medical meetings in the United States, especially in California in conjunction with the Panama-Pacific Exposition. Most notable of these were doubtless the meetings of the American Medical Association and of the Pan-American Medical Congress. In conjunction with these there also assembled in San Francisco the following non-affiliated societies during the month of June: the Pacific Coast Oto-Ophthalmological Society, June 14 to 16; American Society of Tropical Medicine, June 14 to 16; American Association of Medical Milk Commissions, June 17 to 19; American Climatological and Clinical Association, June 18 and 19; American College of Surgeons, June 21; Medical Society of the State of California, June 21; American School Hygiene Association, June 25 and 26; American Association of Medical Examiners, June 21; American Therapeutic Society, June 21 and 22; American Proctologic Society, June 21 and 22; American Hospital Association, June 21 to 25; Medical Association of the Isthmian Canal Zone, June 23 and 24; Pacific Association of Railway Surgeons, June 25; American Academy of Medicine, June 25 to 28.

At the opening session of the sixty-sixth annual convention of the American Medical Asso-

ciation on June 22, the principal address was delivered by the president-elect, Dr. William L. Rodman of Philadelphia on "Safeguards for Surgery," describing particularly the work and aims of the American College of Surgeons. Among the various section meetings one of the most important was that of the section on surgery on June 25, which was devoted to a symposium on military surgery. It was voted to hold the next meeting at Detroit, Mich., in 1916. Dr. Rupert Blue, surgeon-general of the United States Public Health Service was elected to succeed Dr. Rodman as president next year.

The fortieth annual meeting of the American Academy of Medicine was held in San Francisco from June 25 to June 28, inclusive. At the opening session on June 25 the presidential address was delivered by Dr. Woods Hutchinson of New York on "The Physician as a Pioneer"; and the annual address by Mr. David Starr Jordan on "The Relation of Medicine to the Peace Movement." The general subject of the entire meeting was "Medicine in Its Relationships to Commerce and Transportation." In this connection Dr. W. C. Rucker, assistant surgeon-general of the United States Public Health Service, presented an address on "The Transmission of Typhoid Fever on Trains and Steam-boats"; Dr. Henry B. Hemenway of Evanston, Ill., on "The Transportation of Consumptives"; and Dr. C. W. Hopkins of Chicago on "The Hospital Organization of Railway Systems." Dr. Rupert Blue, surgeon-general of the United States Public Health Service, was elected an honorary member of the Academy. In his presidential address Dr. Hutchinson spoke in part as follows of the function of the physician in the development of new communities:

"The real enemy of the pioneer, the chief obstacle to the spread of civilization is not Indians or wolves, or rattlesnakes, or even famine or flood, or winter cold or tropic heat,—but insects. Most schemes of colonization that failed—failed not from famine or the attack of enemies, but through disease. And more than half of them from one disease—malaria. This is not merely the Age of Man, but the Age of Insects, geologically considered, and the battle is to the death between them for the possession of the earth.

"In the tropics, the insects get the whip hand of man and keep him stupid, short-lived, uncivilized. It was the Plague of Flies, the bloody tyranny of insects, that drove man out of the warm, comfortable, fertile tropics into the chilly, rain-swept, half-the-year-frozen north. Now grown to full human stature, he is coming back

to invade and reconquer the tropics and put to flight the ancient foes of the race.

"In an earlier day the first requisite of a new colony for a pioneering expedition was a captain, bold and skilful fighting man, with muskets or every grown man in the party, and plenty of powder and ball. But now the first and most fundamental requirements of a new colony are a brazier-engineer, with microscope and test tubes, spades and trenching machines, and plenty of quinine, kerosene and mosquito netting.

"New countries can and ought to be models of health, efficiency and comfort for the older communities, and could easily be made so at moderate expense if the physician pioneer be given a free hand in advance, as Gorgas was at Panama. In fact, we can pretty nearly assure success if the soil be good and the water sufficient.

"It must be remembered in fairness that bad insects are, they do not originate the diseases they spread, but only carry them from one infected human being to other healthy ones. Derive them of their source of infection and they become comparatively harmless. A few weeks' isolation or appropriate treatment with quinine, Ivarson, thymol, etc., would be sufficient in the vast majority of cases to clear up all risk. Physical examinations would be worth twice their cost to the individuals examined alone; and, in combination with a proper sanitary survey, turn new countries and new colonies to little health-heavens on earth."

The next session of the American Academy of Medicine will also be held at Detroit, Michigan, 1916, and its general topic will be "Legislation and Medicine."

The seventy-first annual meeting of the American Institute of Homeopathy was held in Chicago from June 28 to July 2, inclusive, and was attended by members from all parts of the United States. In conjunction with this meeting the National Society of Physical Therapists held its twenty-second annual session on June 30. Among the papers presented was one by Dr. James Searson of London, a British surgeon attached to the Anglo-American Homeopathic Hospital in Paris. At the session of the institute on July 1 Dr. Henry C. Aldrich of Indianapolis was elected president for the ensuing year and it was voted to hold the next annual meeting at Baltimore. The following are the remaining officers elected:

First vice-president, Dr. T. E. Costain, Chicago; second vice-president, Dr. Cornelia Brant, New York; treasurer, Dr. Thomas Franklin Smith, New York; secretary, Dr. Sarah M. Hobson, Chicago; registrar, Dr. M. D. Forbes, Hot Springs, Ark.; trustees, Dr. E. M. Dearborn,

New York; Dr. J. Richey Horner, Cleveland; Dr. Byron E. Miller, Portland, Ore.

Particular attention was devoted at one of the sessions to the therapeutic value of tincture of alfalfa as a remedy for indigestion and mental depression.

MEDICAL NOTES.

HONORARY DEGREE FOR DR. STILES.—In last week's issue of the JOURNAL we noted the conferring of the honorary degree of doctor of science by Yale University on Dr. Charles W. Stiles. In conferring this degree the president said: "Five years of foreign study, arduous research and the spur of visible suffering have fitted and impelled Dr. Stiles to attack the obscenities of parasitic disease. Both brutes and men owe him gratitude. He is the discoverer of the American hookworm, that widespread and dreadful scourge of the South. By his investigation and through his propaganda an entire people is being lifted to a higher plane of physical and economic being."

PREVALENCE OF MENINGITIS, POLIOMYELITIS, SMALLPOX, AND TYPHOID.—The weekly report of the United States Public Health Service for June 25, 1915, states that during the month of May, 19 cases of cerebro-spinal meningitis and five of poliomyelitis were reported in Massachusetts. During the same month there were 115 cases of smallpox in Minnesota and 101 in Wisconsin. There were also 129 cases of typhoid fever in Massachusetts, 74 in Maryland, 54 in New Jersey and 35 in Minnesota.

CONSTITUTIONALITY OF THE HARRISON LAW.—Report from Chicago states that before the United States District Court a suit has been entered against a physician charged with aiding drug habitués to procure morphia and cocaine in violation of the Harrison anti-narcotic law. It was argued before Judge Landis by the council for the defendant that this law is unconstitutional because it denies the drug users their inalienable right to the pursuit of happiness.

MORTALITY RATES IN THE WESTERN HEMISPHERE.—Statistics of death rates from principal causes have been drawn up by the Prudential Insurance Company covering sixteen leading cities of North and South America. The diseases causing the largest percent. of deaths in these respective cities of North America are as follows. Except as otherwise stated, the figures cover the years 1908 to 1912.

Montreal—Diarrhea and enteritis.....	21.8
Winnipeg—1910-1912—Diarrhea and enteritis..	13.1
Vancouver—1911-1913—External causes.....	11.5

Boston—Pneumonia.....	11.5
New York—Pneumonia.....	13.6
Washington—Tuberculosis.....	13.4
Chicago—Pneumonia.....	14.2
Denver—Tuberculosis.....	20.8
San Francisco—Organic heart diseases.....	13.5
Los Angeles—Tuberculosis.....	18.4
New Orleans—Tuberculosis.....	12.9
Havana, Cuba—Tuberculosis.....	17.6
Kingston, Jamaica—Diarrheal diseases.....	13.3
Mexico City, Mexico—Diarrhea and enteritis.....	23.3
San Salvador, Salvador—Diarrhea and enteritis.....	16.7
City of Panama, Panama—Diarrhea and enteritis	19.5

LONDON DEATH-RATES IN MAY.—Statistics recently published show that the total death-rate of London in May, 1915, was only 14.6 per 1000. Among the several districts and boroughs, the highest rate was 23.1 in the central portion of the city, and the lowest was 11.1 in Wandsworth on the south.

DECLINE OF THE FRENCH AND BRITISH BIRTH RATE.—In previous issues of the JOURNAL we have called attention to the probability of an acceleration in the decline of the European birth rate as a result of the present war. Naturally this effect is now beginning to make itself felt with increasing obviousness. During June the number of births in London alone was nearly 500 less than that of the corresponding period during the past five years, and a similar ratio of decline prevails elsewhere in Great Britain. Moreover, during the past quarter the number of deaths among infants has been 200 a week more than during the corresponding period of 1914.

Report from Paris on July 1 states that the decline in the French birth rate has been particularly noticeable during the current year. The rate in 1914 averaged 1000 births daily, but at the beginning of 1915 the figures dropped to 850, and there has been a rapid decline since then. In the week of June 6 to June 12, which was the last week recorded, there were only 356 births in the entire country.

EUROPEAN WAR NOTES.—During the period from Feb. 14 to May 20, 1915, there were reported in Europe 232 cases of typhus fever in Egypt, 240 in Germany and 833 in Moscow. From August 1, 1914 to April 24, 1915, there were 5489 cases of the disease in Austria-Hungary.

Report from London on July 2 states that the parliamentary under-secretary of war recently presented to the House of Commons statistics confirming the remarkable efficacy of anti-typhoid inoculation in the prevention of disease among the British troops.

"In the British expeditionary force in France there had been only 827 cases and 128 deaths up to May 27. Of this number 508 cases were per-

sons who had not been inoculated and 106 of these died. There were only 22 deaths among the 308 men inoculated who, despite inoculation, contracted the disease."

Report from Madrid by way of Paris on July 5 states that the pharmaceutical college of Spain reports an acute shortage of drugs in that country on account of the withdrawal of the source of supply of many important drugs produced in Germany.

On June 12 a surgical unit from the University of Pennsylvania sailed from New York aboard the steamship *St. Louis* for France, to assume charge of a ward in the American Ambulance Hospital at Neuilly, Paris. The personnel of this unit consists of ten surgeons and four nurses, the former being Dr. J. William White; Dr. James P. Hutchinson, who will be the managing head of the unit; Dr. Daniel J. McCarthy, neurologist; Dr. Edmund B. Piper; Dr. Walter Estell Lee; Dr. Arthur E. Billings; Dr. Peter M. Keating; Dr. Samuel Goldschmidt, bacteriologist; Dr. Thomas C. Allen and Dr. David M. Davis, of Johns Hopkins University. The period of service of this unit will be three months, beginning July 1.

On July 10, the total of the principal New England relief funds for the European War reached the following amounts:—

Belgian Fund.....	\$265,114.25
Red Cross Fund.....	135,955.10
Jewish Fund.....	64,737.27
Serbian Fund.....	34,121.19
St. George's Fund.....	10,517.69

It is reported by cable that the second Harvard surgical unit, which sailed from New York on June 25, has safely reached Falmouth, England, and has proceeded thence to London.

ROCKEFELLER WAR RELIEF COMMISSION.—The recently published report of the War Relief Commission of the Rockefeller Foundation describes the work of that organization among noncombatants in Europe since November, 1914. This investigation covered the entire field of the war with the exception of Turkey and Italy. The suffering and destitution were exaggerated in Serbia and Montenegro by the epidemic of typhus, which has now been largely checked by the work of the American Sanitary Commission under Dr. Richard P. Strong. Suffering is now most acute in Russian Poland and in part of Galicia. In its relief work in Poland the commission has been particularly aided by the co-operation of the German government, a co-operation which the report describes in part as follows:—

"The German government agreed to furnish \$500,000 a month for the purchase of food, and to stop all requisitions in Poland, as soon as the relief work began. Efforts to obtain grain from other countries in Europe for shipment to Poland were, however, unsuccessful. That sit-

ation has now been taken care of, as the German government has recently advised the commission that, having completed an inventory of the food supplies available at home, Germany found itself in position to assume entire responsibility for the relief of that part of Poland under its control. The commission for relief in Poland then restricted its attention to efforts in the district controlled by Austria, namely, southern Poland and Galicia. There, again, the greatest difficulty was experienced in obtaining grain from outside, but word has now just been received that the work initiated by the international commission in that territory will be assumed by the National Austrian Committee."

The headquarters of the Commission has now been established in Switzerland, where it will continue its work throughout the war.

EFFICIENCY OF THE GERMAN RED CROSS.—In a recent issue of the American Red Cross monthly magazine is an article by Dr. Kimmle, secretary of the German Red Cross organization, describing the work of the German Red Cross during the present war. The German Red Cross was mobilized simultaneously with the army in 1914 and at present has over 5000 nurses in the field.

"The nurses of the German Red Cross are divided into three classes, the first being the Red Cross Sisters, who for years have carried on the profession of nursing. Second class, the volunteer auxiliary sisters, who undergo one-half year's training, pass an examination, and who are called out from time to time to take part in repetitive courses and practical service in military hospitals. The third class comprises the volunteer helpers of the Red Cross. They are employed only in the home military hospitals, and even then only under the supervision of trained nurses.

"Over 60% of the Red Cross nurses, about 500 in all, are now on the battlefield or in the field, war, and base hospitals. The remainder are at home, nursing not only sick and wounded soldiers, but also men, women and children of the civil population.

"Beside the female personnel, we have a male staff of stretcher bearers and sick attendants. They receive their training in the First Aid Department of the Red Cross and the Red Cross Association of Voluntary Attendants, as well as number of the Samaritan Societies of the Red Cross. At the beginning of the war these organizations numbered from 70,000 to 80,000 men, and this number has materially increased.

"They are uniformed and equipped according to regulations, and form an army of 'Caritas.' About 20,000 men have been sent to the front or ase, where they do service in army hospitals and in the depots, while a still larger number do service in army hospitals and Red Cross trains and the home military hospitals.

"We have army, Red Cross and auxiliary hospital trains and ambulances, these last being

complete ambulatory field hospitals, with all the comforts that a stationary field hospital affords its patients. The War Department hospital trains, classified by numbers, and the Red Cross trains, classified by letters of the alphabet, are about the same. They consist of fourth-class vestibule cars, that allow the physicians and nursing corps to get quickly and easily from one end of the moving train to the other. The wounded lie on stretchers, on which, in the Red Cross trains, are mattresses, and are protected from cold by blankets enclosed in washable linen cases. Ten such hospital trains the central committee of the Red Cross had completed shortly after mobilization, and there are now in the entire organization of the Red Cross several dozen.

"Besides aid to the sick and wounded, the Red Cross undertakes the duty of doing everything necessary for the families of the men called to arms. The state grants do not wholly cover all needs. The women of the Red Cross have tried to embrace in their grasp all those who require additional aid and care for them with self-sacrificing devotion and broad understanding."

BOSTON AND NEW ENGLAND.

RABIES EPIDEMIC IN MASSACHUSETTS.—On account of the prevalence of rabies in dogs throughout various cities and towns of this state quarantines have been declared in Cambridge, Belmont, Waltham, Gloucester, Rockport and Sterling, and precautionary measures have also been taken in Dedham. These quarantines were put into effect at the request of Dr. Lester H. Howard, commissioner of the Bureau of Animal Industry, and it is reported that he will ask for a continuance of the quarantine in Wakefield. The State Board of Health has on record twelve persons who are undergoing the Pasteur treatment for rabid dog bites. Fortunately the city of Boston so far has escaped the epidemic. Records show that only three cases of rabies have occurred in Boston this year and those occurred some time ago. On July 2 it was reported that all dogs in the town of Northbridge, Mass., are to be either leashed or muzzled on account of a dog who recently developed rabies in that town after being bitten by a stray dog. No one, so far as is known, was bitten by the animal.

CASE OF PELLAGRA IN WALTHAM.—On July 1 a case of pellagra was reported in Waltham, Mass., in the person of a woman formerly a resident of Newton. The diagnosis has been confirmed and the patient transferred to a state institution for treatment.

DECREASE OF BOSTON MARRIAGE RATE.—During the month of June, 1915, there were in Boston 140 fewer weddings than during the same period in 1914. During the first six months of this year there were in this city only 4638 mar-

riages as compared with 4985 during the first half of 1914.

TRANSFER OF MEDICAL INSPECTION OF SCHOOLS.—In a previous issue of the JOURNAL we noted the proposal to transfer the function of the medical inspection of schools in Boston from the health department to the school department. On June 8 the Boston Board of Health passed the following vote:—

"It was voted by Messrs. Mahoney and Muldowney that the Board of Health shall on and after the first day of July, 1915, maintain no longer the medical inspection of the children in the public schools of the city, as the school committee has voted to exercise the powers and to perform the duties provided by law for the appointment of school physicians, and for the maintenance of such medical inspection."

This action is being contested by the school physicians to whom a hearing was given by the Board of Health on July 2, their chief objection being the proposition of the school committee to reduce the number of school physicians from eighty to forty. The Board of Health has issued a statement upon the subject, reading in part as follows:—

"The school committee by Chapter 357 of 1907 is required to appoint a supervising nurse and district nurses; these nurses by Section 1 of this chapter are to assist the medical inspectors in their work in the public schools. The school committee is allowed 2% on every \$1000 of the valuation upon which the appropriations of the City Council are based to meet the expenses thus incurred—roughly speaking, \$30,000. Such division in the charge and control of the work of medical inspection of public school children by having the school committee appoint the nurses and by having the Board of Health appoint the school physicians seemed to the Board of Health unnecessary and to result in less efficient service than if the complete authority over the subject were reposed in one department.

"The Board of Health has been unable to secure jurisdiction over the nurses, and now that the school committee has voted to take over the functions of medical inspection, believes that the best interests of the public require the Board of Health to relinquish such medical inspection."

COMPLIANCE WITH THE TUBERCULOSIS DISPENSARY LAW.—In previous issues of the JOURNAL we have commented from time to time upon the progressive compliance of the various cities of this Commonwealth with the law requiring the establishment of local dispensaries for the diagnosis of tuberculosis. It is stated by the Massachusetts Commissioner of Health that this compliance is now rapidly progressing.

"There are fifty-four cities and towns in Massachusetts of more than 10,000 inhabitants that come within the scope of the law and twenty-nine of them have already established dispensaries which have received the approval of the

State Department of Health. These are Boston, Worcester, Fall River, New Bedford, Springfield, Lawrence, Somerville, Malden, Haverhill, Salem, Newton, Brookline, Northampton, Leominster, Attleboro, Peabody, Woburn, Newburyport, Gardner, Marlboro, Clinton, Milford, Framingham, Watertown, Southbridge, Webster, Methuen, Arlington and Winthrop. In some instances, notably Malden and Winthrop, it is the intention to make the scope of the dispensary even greater than the law requires. They will be housed in separate buildings and will be known as public health dispensaries. They will be headquarters for work looking toward the elimination of conditions which are favorable to tuberculosis and other diseases.

In addition to the twenty-nine places that have already complied with the law, fifteen others have provided dispensaries or have voted the money for them, and their arrangements probably will receive the approval of the state department within a short time. Included among these are Lowell, Cambridge, Taunton, Quincy, Gloucester, Chelsea, Pittsfield, Waltham, Chicopee, North Adams, Revere, Adams, Weymouth, Plymouth and Wakefield. This leaves only ten other cities or towns that are not immediately in line with the law."

MASSACHUSETTS HOSPITALS FOR CONSUMPTIVES.—The recently published eighth annual report of the Trustees of the Massachusetts Hospitals for Consumptives covers the four institutions under the control of that board, the North Reading, Lakeville, Westfield and Rutland Sanatoria. At the North Reading Sanatorium during the past year the daily average of patients has been 195 as compared with an average of 190 last year, and an original capacity of 150. Additions were made to the Lakeville State Sanatorium which increased the capacity of the hospital by 34 beds and the daily average of patients was 245. At the Rutland State Sanatorium the daily average of patients was 350. The admissions were 469 and the discharges 476. The daily average of patients at the Westfield State Sanatorium was 234. The hospital is now caring for over 100 children twelve years of age and under. The importance of childhood infection is coming to be recognized as a most important factor in anti-tuberculosis work, and the board wishes to impress upon physicians and anti-tuberculosis workers throughout the state the absolute necessity of recognizing and treating tuberculous children if progress is to be made in combating the disease. It urges the study of infection in children and the necessity of making an early diagnosis. The bulk of the patients at present under treatment in the state sanatoria represent the result of infection contracted when children. To arouse interest in the importance of this subject the Board sent out to every registered physician in the state a letter calling attention to this subject.

TYPHOID FEVER IN MANSFIELD.—The recently published bulletin of the Massachusetts State Department of Health for April, 1915, contains a brief study of two outbreaks of typhoid fever occurring in Mansfield, Mass., within the past year.

"During the months of August, September and October, 1914, and March, 1915, there were 47 cases of typhoid fever reported to the Board of Health of Mansfield. For the six preceding years there had been but 3 cases, 2 in 1911 and 1 in 1913. In the recent outbreaks, which were six months apart, 29 cases were reported in 1914 and 18 in 1915, the majority of the patients being women and children.

Investigations were made during the fall outbreak and it was found that all of the cases were in the route of one milk dealer. On account of his fact, and of the explosive character of the outbreak, it was concluded that the infection was conveyed by milk. The dealer in question, who supplied about 160 families, was not a producer but purchased from five dairies in the neighborhood. No cases of disease were discovered at any of these farms. Unfortunately, no specimens of blood from any of the milk dealers involved were examined by the Widal test.

No more cases of typhoid fever occurred in the town until the first of March, 1915, when, in the course of ten days, 18 cases were reported, all of the patients taking milk from this dealer. The second outbreak was of the same character as the preceding. The milk supply from this dairy was shut off. Laboratory investigations were undertaken immediately. Widal tests were made of the blood from members of the family of the milk dealer and those selling to him. A positive Widal reaction was obtained from the blood of the child of the milk dealer and an atypical reaction in the case of the wife. Typhoid bacilli were isolated from the urine of the child.

Considered epidemiologically, it seemed as if here were a common source of infection for these two outbreaks. There is the possibility that the milk dealer's wife and child, who visited Rhode Island in July, 1914, may have become infected there with typhoid and one or both become carriers."

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending July 6, 1915: Diphtheria, 55 of which 6 were non-residents; scarlatina, 49, of which 10 were non-residents; typhoid fever, 1; measles, 132; tuberculosis, 51, of which 2 were non-residents. The death rate of the reported deaths for the week was 11.77. Low though it is, this rate is slightly higher than that of the corresponding week last year. This is due partly to the increased incidence of diarrheal diseases of infancy during the recent wet weather, partly to the steady increase in deaths from cancer and cardio-renal degeneration.

Miscellany.

THE ORGANIZATION OF NATIONAL AND LOCAL FORCES IN THE CAMPAIGN AGAINST CANCER.

BY CURTIS E. LAKEMAN,

Executive Secretary, American Society for the Control of Cancer.

The American Society for the Control of Cancer has recently urged that every state medical society take an active part in arranging meetings and in spreading among all members of the profession the latest knowledge of malignant disease. At the suggestion of the Cancer Committee of the Pennsylvania State Medical Society, many journals will devote their July issues to this subject. It has been pointed out that the American Society for the Control of Cancer might take this timely opportunity to state its view of the relations between the various bodies which are concerned in this campaign. The suggestion is welcome. If, indeed a clear understanding can be reached as to the most effective division of functions and duties among the various organizations, national, state and local, interested in this subject, a long step will have been taken toward the conquest of malignant disease, in so far as that ideal can be approached by the practical application of present knowledge.

The National Society. The American Society for the Control of Cancer sets up no claim of priority or originality in preaching to the public the necessity of early recognition and treatment of this disease. The organization was effected under the inspiration of numerous similar movements in this country and in Europe. From the first it has been inspired only by a sincere ambition to coördinate all existing forces into a single irresistible nation-wide effort to reduce the cancer death rate by imparting the necessary knowledge and inspiring the will to believe and act upon it. Those who direct the policy of the Society have no illusions that they are "called" above others to this task. They firmly believe that all sincere workers should unite in a single well considered national movement. If the present Society fails to meet the requirements of such a movement it must give place to some agency that will do so, leading the campaign against malignant disease with as conspicuous ability and success as the National Association for the Study and Prevention of Tuberculosis has directed the war on consumption.

Relation to the Professional Societies. While the Cancer Society found its first impulse in the work of a committee of the American Gynecological Society, the movement was broadened at its very inception by the appointment of organizing delegates from the American

Surgical Association, the American Dermatological Association, the Association of Pathologists and Bacteriologists, and practically all the similar special organizations which met in Washington in May, 1913, as the Congress of American Physicians and Surgeons. Definitely launched in New York on May 22, 1913, the movement received within a few months the official endorsement of the American Medical Association, the Clinical Congress of Surgeons, the Western and the Southern Surgical and Gynecological Societies and a number of sectional and state organizations. All these professional bodies have endorsed the design of the National Cancer Society as expressed in its Constitution:—

“To disseminate knowledge concerning the symptoms, diagnosis, treatment and prevention of cancer, to investigate the conditions under which cancer is found and to compile statistics in regard thereto.”

Relation to Cancer Research. It will be seen that this purpose comprises not only the conduct of an educational campaign, but the gathering of information in regard to this disease. In what relation, then, does the Society stand to the various American cancer research institutions and workers? The answer is that the Society does not contemplate the prosecution or support of biological research, already so ably pursued under the auspices of our leading universities. With these workers in the field of pure science mutually helpful relations have developed. Indeed a notable collective expression of their attitude is regarded as a very cornerstone of the educational movement. A few years ago the eminent laboratory students placed on record in the transactions of their official organization, the American Association for Cancer Research, their conviction that pending the discovery of the ultimate nature and cause of cancer, a far more effective dissemination and utilization of the vast store of present knowledge of the disease is urgently called for. Formed to carry out this very object, the “Control” Society depends upon the constant support and co-operation of the institutions represented in the “Research” Society. Many of the foremost American students of cancer are prominent in the membership of both organizations. Machinery is thus provided for the wider dissemination among the profession and the people of the essence of the newest knowledge of malignant disease, fresh from its laboratory sources.

Relation to Statistical Investigations. The Society does, however, contemplate original work in the collection and collation of statistical data, and will expand this feature of its program as fast as its resources permit. The statistics of cancer mortality need to be improved both as regards their collection and their publication. The merest suggestion by the Society to the U. S. Census Bureau has been sufficient to initiate a notable advance in this respect. With the greatest possible interest and zeal, Mr. Har-

ris, the late Director of the Census, and his successor, Mr. Rogers, have undertaken the preparation of a special report on the cancer mortality of the U. S. Registration Area in 1914. The number of deaths will be stated in full detail under some thirty titles of organs and parts of the body affected, instead of, as hitherto, merely under the six general groups of the International List. The Imperial Cancer Research Fund has long urged that it is only on the basis of such detailed data for the various organs that a true conclusion can be reached as to whether or not cancer is increasing. For the first time in the United States the data will now be at hand, as it is in England and Wales, through the reports of the Registrar-General, for the prosecution of such inquiries.

The Census Bureau will also for the first time in this study make a distinction between returns based on certain and on doubtful diagnosis. To secure the additional information needed for this distinction the Bureau is sending tens of thousands of letters to physicians who have certified deaths from cancer asking whether the diagnosis was based on clinical findings alone or was established by surgical intervention, microscopical examination, or autopsy.

All this, it will be realized, is a large amount of work for even a government bureau to undertake. Much of it should be done in the first place by the registration offices and the boards of health of the several states, where the original certificates of death are filed. It will be the duty of the American Society for the Control of Cancer to urge upon the various state officials the need of undertaking this work in order to insure the permanence of the advance in the statistical study of cancer which has been inaugurated by the Census Bureau.

But the Society is also interested in special statistical studies of the geographical, racial and occupational distribution of cancer, and above all in collating, upon a uniform plan, the records of surgical treatment of the disease in the leading hospitals. It is important that an authoritative answer be available for all who ask just what percentage of success is to be expected in the treatment of each phase and each stage of this multiform disease. All such studies the Society regards as fulfilling its fundamental purpose and in pursuing them it is everywhere receiving the most cordial encouragement and assistance from statistical offices and from the best hospitals and institutions.

Relation to Educational Agencies. The important and clearly established lessons derived from such studies of the sources of information must be given to the public. The Society has undertaken to do this directly, through its publications, its regular articles for the newspapers and its lectures. But in the large view it can best secure this object by enlisting the co-operation of all appropriate existing agencies which conduct educational work. Foremost

among these are the state and local departments of health, especially those which are devoting an increasing share of their energies to the spreading of the gospel of health by bulletins, exhibits and lectures. In the same category must be included the committees on public instruction, which in many states are conducting admirable campaigns of health education under the auspices of the state medical societies. Toward all these agencies the Society stands in the relation of the "producing" to the "distributing" end of a manufacturing business. With its wide outlook over the national field it is in a strong position to provide statistical material, to receive and pass on new knowledge, new experiences, new methods which have been found valuable in one field and should be used in others. In another view the Society may take the position of "middleman" between the research workers and statistical students, producing new facts about cancer at the sources of knowledge on the one hand, and on the other the many agencies, general and local, which will bring the practical bearings of this knowledge, new and old, directly home to the people. In general, then, one of the most useful functions of the Society is to act as a bureau of information and clearing house, which is at the service of all workers and institutions interested in the study and control of cancer.

Relation to State Committees. The relation of the National Society to similar movements within the various states should be clear from what has been said. In no case will the Society seek to set up local agencies to parallel work already adequately organized under the auspices of state medical societies and boards of health. Provision is made for local committees to be organized under the supervision of the resident directors of the National Society, wherever no state or local agency is in a position to undertake the work. Such groups will not be formed, however, except under full agreement with present state agencies. Where, as in Pennsylvania, under Dr. Wainwright, and similarly under the auspices of state medical societies in Maine, Wisconsin, Kansas, Colorado, Louisiana, Texas and many other states, active local committees are at work, every effort will be made to assist these groups in the manner already outlined and, so far as the constitutional limits of size permit, to secure from them representative delegates to the governing council of the National Society. At least one director from each state will eventually be chosen to act as a local correspondent who will inspire and stimulate work in his own state, while at the same time assisting in formulating the general policies of the National Society.

Relation to Other General Committees. It is an earnest of the good feeling and harmony with which the cancer campaign is evolving toward a single coherent national movement to consider the high degree of integration with other national agencies which has already been

attained. Some of these had begun effective work long before the present Society was established. Aside from such admirable local campaigns as that of the Pennsylvania Commission and the work inspired by Dr. C. C. Carstens in Michigan, the Clinical Congress of Surgeons of North America had in the field an active Committee on Cancer under the chairmanship of Dr. Thomas S. Cullen of Baltimore, the other members being Dr. Simpson of Pittsburgh and Dr. Howard C. Taylor of New York. This committee, as is well known, caused the publication of widely read and influential popular articles by Samuel Hopkins Adams. It is instanced merely as indicative of the get-together spirit that animates the National Society that all three of these men naturally took their places as members of the Executive Council of the new association. Subsequently the American Medical Association appointed a Cancer Committee representing its Council on Health and Public Instruction, and again, to avoid duplication of effort, the same men were made members of that committee. Dr. Frederick R. Green, the capable executive of this Council of the American Medical Association, has been from the first a director of the Cancer Society, and has given invaluable advice and coöperation in its publicity campaign, printing every week in the press bulletin of the A. M. A. a popular article on cancer prepared by the Society, which thereby reaches 3000 or more editors in all parts of the country.

A similar identity of committees has been effected in local fields, especially in Minnesota, and is typical of the desire to carry on everywhere a well-coördinated national campaign which shall embrace representation from all the principal local agencies and shall thus move forward with absolute harmony and unity of purpose to the accomplishment of its difficult but glorious ideal—the progressive reduction of the mortality from this historic scourge of mankind.

COMPARATIVE DEATH RATES.

The mortality statistics of the United States Census office for 1913 have recently become available and show that of the registration states Washington has the lowest death rate and disease incidence. The other registration states follow Washington in the subsequent order: Minnesota, Utah, Wisconsin, Colorado, Montana, Missouri, Kentucky, Indiana, Michigan, Ohio, Virginia, New Jersey, New York, Pennsylvania, California, Connecticut, Maine, Massachusetts, Rhode Island, Vermont, Maryland, North Carolina, New Hampshire.

The non-registration states in the union are the following: Illinois, Iowa, North Dakota, South Dakota, Nebraska, Kansas, Wyoming, Idaho, Oregon, Nevada, South Carolina, Georgia, Florida, Alabama, Tennessee, Missis-

sippi, Arkansas, Louisiana, Oklahoma, Texas, New Mexico and Arizona.

In these non-registration states the following cities belong to the registration area: Birmingham, Mobile and Montgomery, Ala.; Wilmington, Del.; Jacksonville, Key West and Pensacola, Fla.; Atlanta, Augusta and Savannah, Ga.; Aurora, Belleville, Chicago, Decatur, Evanston, Jacksonville, Quincy and Springfield, Ill.; Atchison, Coffeyville, Fort Scott, Hutchinson, Independence, Kansas City, Lawrence, Leavenworth, Parsons, Pittsburgh, Topeka, Wichita, Kan.; New Orleans, La.; Lincoln and Omaha, Neb.; Portland, Ore.; Charleston, S. C.; Nashville and Memphis, Tenn.; El Paso, Galveston and San Antonio, Tex.; Wheeling, W. Va.

Compared with other nations the United States in 1912 stood sixth in the percentage of its death rate. The countries which surpassed it were New Zealand, Australia, Denmark, England and Norway. The remaining countries followed the United States that year in the subsequent order: Sweden, Scotland, Prussia, Switzerland, Belgium, Ireland, Finland, France, Italy, Austria-Hungary, Spain, Serbia, Romania, Chili.

Within recent years the most rapid decrease in the death rate has taken place in Holland, Prussia and Australia.

In 1912 The Hague had the lowest death rate in the world, 10.9. Amsterdam stood second with a rate of 11.2 and the remaining large cities of the world followed in subsequent order: Rotterdam, Sidney, Toronto, Turin, Dresden, Christiana, Brussels, London, Hamburg, Melbourne, New York, Copenhagen, Stockholm, Berlin, Munich, Chicago, Philadelphia, Vienna, Edinburgh, Prague, Milan, Boston and Paris.

In 1913 Seattle had the lowest death rate among the large American cities, 8.4. Spokane stood second with a rate of 8.9, and Portland, Oregon, third, 9.5. The remaining cities followed in subsequent order: St. Paul, Minneapolis, Oakland, Milwaukee, Grand Rapids, Cambridge, Paterson, Omaha, Denver, Cleveland, New York, (14th, rate 14.3), Newark, Jersey City, Rochester, Scranton, Kansas City, Bridgeport, St. Louis, Los Angeles, Chicago (23d, rate 15.1), Providence, Columbus, Philadelphia, Syracuse, Indianapolis, Buffalo, Worcester, Lowell, New Haven, San Francisco, Dayton, Toledo, Louisville, Boston.

The negroes have a much higher death rate than any other nationality or race.

The rank of the cities in which the negro population is more than 20% is as follows: Portsmouth, Va., 13.7; Durham, N.C., 14.1; Key West, 14.9; Others come in the order named: Roanoke, Atlantic City, Charlotte, N.C., Pensacola, Newport News, Greensboro, Knoxville, Washington, Birmingham, Atlanta, Alexandria, Nashville, Frankfort, Ky.; Lynchburg, Danville, Va.; Jacksonville, Fla.; Norfolk, Augusta, Henderson, Ky.; New Orleans, Paducah, Rich-

mond, Va.; Memphis, Winston-Salem, Mobile and Ashville.

The average death rate for cities having a large negro population is 18.3.

In 1913 the lowest death rate from diphtheria in American cities was 0.8 in Spokane. Other figures were: 1.9 at Birmingham, Ala.; 4.4 at Seattle; 5.3 at Portland, Ore.; 6 at Richmond, Va.; 36.3 at Cleveland; 36.6 at Pittsburgh; 41.2 at Chicago; 43.9 at Grand Rapids and 57.6 at Detroit. The lowest scarlet fever death rate in 1914 was 0.6 at Birmingham, Ala., and at New Orleans. Other rates were 1.1 at Oakland, Calif.; 2 at Albany and Seattle, 2.2 at Kansas City, 21.8 at Fall River, 22.3 at Denver, 26.4 at Pittsburgh, 26.8 at Bridgeport, Conn., and 39.2 at Chicago.

In 1913 the greatest prevalence of smallpox occurred in these states in the following order: North Carolina, Utah, Montana, Minnesota, California and New Hampshire. The greatest incidence of diphtheria was 25.9 per hundred thousand in Pennsylvania, the least was 3.1 in Washington. Next to Washington came Montana, California, Colorado, Utah, Vermont and Minnesota. The lowest incidence of scarlet fever was 2.2 in Maine, next in Washington, Kentucky, Virginia, North Carolina, New Hampshire and California. The rate in Colorado was 17.2 and the highest was 282.4 in Montana.

The tuberculosis incidence rate was lowest in Utah, 41.5. Washington stood second with a rate of 74.9. Other rates were Michigan, 77.4; Wisconsin, 84.3; Minnesota, 88; Vermont, 88.3; Montana, 93.3; Maine, 96.2; New Hampshire, 98.9; Pennsylvania, 104; Ohio, 113; Massachusetts, 120.8; Connecticut, 121; Indiana, 125; Missouri, 126.7; Rhode Island, 133.4; New Jersey, 134.1; New York, 145.9; Virginia, 149.6; Colorado, 170.6; Maryland, 174.6; California, 175.6; Kentucky, 176.2, and North Carolina, 203.8.

The typhoid incidence rate was lowest in Vermont, 7.8. Massachusetts stood second with a rate of 7.9 and the rates in other states were as follows:—Rhode Island, 8.3; Wisconsin, 9, and New Jersey, 9.6. North Carolina is at the bottom of the list with a rate of 57.4. Kentucky was second from the bottom with 42.7; Virginia, third, 33.3; Indiana, 25.1; Missouri, 24.4, and Ohio, 24.

Of infant death rates, from diarrheal diseases, the lowest was 21.6 in Washington. Montana stood next with a rate of 38.6 and in other states the rate was: Minnesota, 41.3; Utah, 43; Colorado, 43.2; New Jersey, 89.9; New Hampshire, 96.2; Maryland, 101.1; Pennsylvania, 106.3, and North Carolina, 114.4. Among the various cities, the lowest death rate from this group of diseases was 9.8 at Portland, Ore. Other rates are 10.2 at Seattle, 24.9 at Spokane; Denver, 24.3, and 31.7 at San Francisco. Among the high rates are 138.5 at Scranton, 142 at Chicago, and 142.3 at Buffalo. The two

highest rates occur in two Massachusetts cities, 165.6 at Lowell and 224.2 at Fall River.

Compared with the total number of deaths, the total number of infant deaths under one year of age in several cities was as follows: Of each 1000 deaths in the United States in 1913, 179 were children under one year of age. The proportion in San Francisco was 90 out of each 1000; in Denver, 114; Los Angeles, 115; Portland, 125; Seattle, 126; Spokane, 135; Boston, 177; Philadelphia, 180; New York, 186; Chicago, 199.

The relative frequency of deaths from various causes may be illustrated by the statistics in Chicago for 1913:

The largest group is deaths of children under one year of age from all causes, 6,939; second, pneumonia, all forms, 4,832; third, consumption, 3,430; fourth, heart disease, 3,337; fifth, bowel trouble in children under two years of age, 3,329; sixth, Bright's disease, 2,697; seventh, violent deaths, excluding suicide, 2,113; eighth, cancer, 2,017; congenital debility and malformation (in the newly born), 1,363; 10th, cerebral hemorrhage (apoplexy), 1,167; 11th, diphtheria, 965; 12th, scarlet fever, 918; 13th, cirrhosis of the liver, 527; 14th, suicide, 517; 15th, tuberculosis, other forms than consumption, 468; 16th, appendicitis, 389; 17th, diabetes, 375; 18th, measles, 278; 19th, typhoid fever, 243; 20th, hernia and other forms of obstructions of the bowels, 217; 21st, puerperal fever, 198; 22d, rheumatism, 183; 23d, bronchitis, 182; 24th, meningitis, 176; 25th, puerperal affections other than fever, 165; 26th, erysipelas, 109; 27th, influenza, 101; 28th, whooping cough, 84.

Among the larger American cities 23 had, last year, a typhoid death rate lower than 10. Of these the best standing was taken by Cambridge, Mass., with a rate of 1.8. Bridgeport, Conn., stood second with a rate of 3.4 and Worcester, Mass., third with a rate of 3.7. New York City stood eighth with a rate of 6.2. Chicago thirteenth with a rate of 7.1. Philadelphia fourteenth with a rate of 7.4, and Boston nineteenth with a rate of 9.1.

Correspondence

ARTICLES OF FAITH CONCERNING CANCER.

NEW YORK, N. Y., July 1, 1915.

Mr. Editor: The enclosed "Articles of Faith" concerning cancer were presented by me at several of the sessions during the four-day Cancer Educational Campaign, under the auspices of the Vermont State Medical Society, June 8-11, 1915. They concluded a paper entitled "The Cancer Patient's Dilemma. A Plea for the Standardization of What the Public Should Be Taught in the Campaign of Education Concerning Cancer," which I read at one of the sessions, and which appears in full in the Cancer number of the *New York Medical Journal*, July 3.

Dr. Jonathan M. Wainwright, Chairman of the

Committee on Health and Public Instruction, Subcommittee on Cancer of the Medical Society of the State of Pennsylvania, and a number of others who heard the paper or "Articles of Faith" have suggested that these Articles should be given wide circulation among the medical profession, as a platform, so to speak, upon which we can unite in teaching the public concerning cancer. They have urged that I send copies to the different medical journals for publication in the Cancer Number, or in the next issue.

In accordance with this suggestion, I am enclosing copy, to which I trust you will give space in your journal.

Yours very truly,

WM. SEAMAN BAINBRIDGE, M.D.

"ARTICLES OF FAITH" CONCERNING CANCER.

A PLATFORM UPON WHICH TO UNITE IN THE CAMPAIGN OF EDUCATION.

1. That the hereditary and congenital acquirement of cancer are subjects which require much more study before any definite conclusions can be formed concerning them, and that, in the light of our present knowledge, they hold no special element of alarm.
2. That the contagiousness or infectiousness of cancer is far from proved, the evidence to support this theory being so incomplete and inconclusive that the public need have no concern regarding it.
3. That the communication of cancer from man to man is so rare, if it really occurs at all, that it may be practically disregarded.
4. That those members of the public in charge of or in contact with sufferers from cancer with external manifestations, or discharges of any kind, need at most take the same precautionary measures as would be adopted in the care of any ulcer or open septic wound.
5. That in the care of patients with cancer there is much less danger to the attendant from any possible acquirement of cancer than there is of septic infection, or blood poisoning from pus organisms.
6. That in cancer, as in all other disease, attention to diet, exercise and proper hygienic surroundings is of distinct value.
7. That, notwithstanding the possibility of underlying general factors, cancer may, for all practical purposes, be at present regarded as local in its beginning.
8. That, when accessible, it may, in its incipiency, be removed so perfectly by radical operation that the chances are overwhelmingly in favor of its non-recur-
9. That, when once it has advanced beyond the stage of cure, suffering in many cases may be palliated and life prolonged by surgical and other means.
10. That while other methods of treatment may, in some cases, offer hope for the cancer victim, the evidence is conclusive that surgery, for operable cases, affords the surest present means of cure.
11. That among the many advances in and additions to cancer treatment, the improvements in and extensions of surgical procedure surpass those in any other line, and fully maintain the predominant position of surgical palliation and cure.
12. That there is strong reason to believe that the individual risk of cancer can be diminished by the eradication, where such exist, of certain conditions which have come to be regarded as predisposing factors in its production.
13. That some occupations, notably working in pitch, tar, paraffin, analin or soot, and with x-rays, if not safeguarded, are conducive to the production of cancer, presumably on account of the chronic irritation or inflammation caused.
14. That prominent among these predisposing factors, for which one should be on guard, are: general lowered nutrition; chronic irritation and inflammation; repeated acute trauma; cicatricial tissue, such as lupus and other scars, and burns; benign tumors—

warts, moles, nevi (birth-marks), etc.; also that changes occurring in the character of such tumors and tissues, as well as the occurrence of any abnormal discharge from any part of body, especially if blood-stained, are to be regarded as suspicious.

15. That while there is some evidence that cancer is increasing, such evidence does not justify any present alarm.

16. That suggestions which are put forward from time to time regarding eugenic, dietetic and other means of limiting cancer, should not be accepted by the public until definitely endorsed by the consensus of expert opinion. Such consensus does not exist today.

17. That so far as we know there is nothing in the origin of cancer that calls for a feeling of shame or the necessity of concealment.

18. That it will be promotive of good results if members of the public who are anxious about their health and those who wish to preserve it will, on the one hand, avoid assuming themselves to be sufferers from one or another dreadful disease, but, on the other hand, will submit themselves periodically to the family physician for a general overhauling.

19. That at all times and under all conditions there is much to be hoped for and nothing to be feared from living a normal and moderate life.

20. That the finding of any abnormal condition about the body should be taken as an indication for competent professional and not personal attention.

21. That watchwords for the public until "the day dawns" and the cancer problem is solved, are: Alertness without apprehension, hope without neglect, early and efficient examination where there is doubt, early and efficient treatment when the doubt has been determined.

The following have been made associates:

- Dr. Carroll G. Bull* (pathology and bacteriology).
Dr. Frederick S. Jones (pathology and bacteriology).
Dr. Clarence J. West (chemistry).
Dr. Michael Heidelberger (chemistry).
Dr. Frederick M. Allen (medicine).
Dr. Oswald T. Avery (bacteriology).
Miss Angelia M. Courtney (chemistry).
Dr. Eduard Ullenhuth (experimental biology).

The following have been made assistants:

- Dr. Harold K. Faber* (pathology and bacteriology).
Dr. Chester H. Allen (chemistry).
Mr. James K. Senior (chemistry).
Mr. Glenn E. Cullen (chemistry).
Miss Marian Vinograd (chemistry).

The following new appointments are announced:

- Dr. R. Werner Marchand*, assistant in the department of animal pathology.
Dr. Carl Ten Broeck, associate in the department of animal pathology.
Dr. Herbert D. Taylor, assistant in pathology and bacteriology.

- Dr. Osvald H. Robertson*, assistant in pathology and bacteriology.

Mr. Ernest A. Wildman, fellow in chemistry.

- Dr. Reginald Fitz*, assistant in medicine and assistant resident physician.

- Dr. Arthur L. Meyer*, assistant in physiology and pharmacology.

Dr. Robert M. Merrick, of Dorchester, Mass., has been appointed a member of the Massachusetts State Board of Charity.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JULY 3, 1915.

CONTRIBUTIONS.

Stamford Medical Association, Stamford, Ct.	\$ 25.00
Buchanan County Med. Soc., St. Joseph, Mo.	27.34
Capt. W. H. Allen, M.C., U.S.A., Manila, P.I.	10.00
Yakima County Med. Soc., N. Yakima, Wash.	25.00

Receipts for the week ending July 3d.....	\$ 87.34
Previously reported receipts.....	5457.00

Total receipts.....	\$ 87544.34
Previously reported disbursements:	
1625 standard boxes of food @ \$2.20.....	\$3575.00
1274 standard boxes of food @ \$2.30.....	2930.20
352 standard boxes of food @ \$2.28.....	804.84

Total disbursements.....	\$ 7310.04
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Balance	\$ 23430
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E. U. SIMPSON, M.D., *Treasurer*,
 7618 Jenkins Arcade Bldg.,
 Pittsburg, Pa.

APPOINTMENTS.

The Board of Scientific Directors of the Rockefeller Institute for Medical Research announces the following appointments and promotions:

Dr. James B. Murphy, hitherto an associate in the department of pathology and bacteriology has been made an associate member.

RECENT DEATHS.

DR. VICTOR A. ELLSWORTH, who died of cardio-renal disease on July 5, at Boston, was born in Milford, N. Y., on April 20, 1846. He received the degree of M.D. in 1876 from the University of Buffalo, and after practicing for a time at East Otto, N. Y., removed to Boston, where in 1894 he became superintendent of the Washingtonian Home for Inebriates. He was a member of the American Medical Association, the New York State Medical Society, and the Massachusetts Eclectic Medical Society. He is survived by his widow, one daughter, and one son.

DR. JOSEPH REDFEARN, of Marlborough, Mass., died of apoplexy at his home on July 1, aged 66 years. He was a graduate of Harvard College, the College of Physicians and Surgeons of New York in 1873, and joined The Massachusetts Medical Society in the same year, practising in his early days at Ashland, Mass. He also practised in Fall River, Hudson and Marlborough, Mass. He is survived by his widow.

DR. EDWARD MERRILL CURRIER of Brookline, Mass., who died of trauma in Quincy, Mass., on July 9, was born at Chelsea, Mass., in 1855. He received the degree of M.D. in 1881 from Boston University, and that of D.M.D. from Harvard in 1885. He is survived by his widow.

DR. CHARLES UPHAM SHEPARD, who died recently at Summerville, S. C., was born in New Haven, Conn., on Oct. 6, 1843. He obtained his preliminary education at Andover Academy and Yale College, and studied medicine at the University of Göttingen, Germany. He never practised his profession, but devoted himself to the study of chemistry of soils and fertilizers, and to the scientific cultivation of tea.

The Boston Medical and Surgical Journal

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Address.

ALCOHOLISM.*

BY ERNEST B. EMERSON, M.D., BRIDGEWATER, MASS.

Bridgewater State Hospital.

ALCOHOLISM has in all times involved the peace and prosperity of a large proportion of the human race. Ancient Egyptian inscriptions, Chinese manuscripts and the Old Testament note the use and abuse of wine and call attention to the evils of drunkenness. Its ravages have wrecked homes, brilliant intellects and empires. It has filled almshouses, hospitals and prisons; and misery has followed its wake. While it is true that the highest order of genius may exist among alcoholics, such genius is one-sided; the more common result is inefficiency, work half-done and the scrap heap for the habitué.

It is primarily a nervous disease, its effects on other organs being more or less secondary manifestations. All viscera are involved and the effects vary with the personal idiosyncrasy, the duration of the disease, and the amount taken. In one it may be the central nervous system, in another the kidneys or the liver which bear the brunt of its toxic action. In the beginning drinking may or may not be regarded as a vice, but at what period it becomes an unbreakable habit or disease only a wise man may say. The individual arrives at this point without knowing

it himself. With the continued use of alcohol there are certain developments and signs which definitely mark the drunkard. Many can drink in moderation without obvious harm, perhaps with no damage; but in some, as time goes on, changes take place modifying the mental and moral life, apparent to the nearest of kin, but unrecognized by the individual. Accompanying the mental and moral degeneracy visceral changes occur, and the kidneys, blood-vessels and liver become less efficient, rendering the drinker thereby even more susceptible to intellectual decay, and a poor subject to meet the crisis of pneumonia or any disease, requiring all that may be in reserve.

The brain is the physical organ presiding over the mind, and through its nerve connections controls the various functions of the body. Upon the integrity of the central nervous system depend all mental and physical phenomena, growth, nutrition, voluntary and involuntary movements, judgment, self-control, intellectual and moral characteristics. Physical or functional impairment of any part of this complicated system is manifested by more or less definite and characteristic evidence of disease. Motor and sensory areas have been charted so that it is possible to localize with a fair degree of accuracy the lesions producing physical dilapidation. The locations of intellectual, moral, judgment and self-control centers remain in the fog, although we are more or less familiar with their many manifestations. The integrity of such functions is necessary for a healthy mental life. The mind is dependent on a healthy condition of the brain, which, in turn, is to a

*Annual oration before the Plymouth District Medical Society at Brockton, Mass., April 15, 1915.

greater or less degree dependent on physical health. Intellectual and moral manifestations are directly influenced by any change from the normal equilibrium. Temporary impairment follows fatigue, injuries, toxic substances or changes in the circulation. Remove these causes, provided cell changes have not taken place, and the mind soon functions in its accustomed manner.

By tradition the laity and profession have long regarded alcohol as more or less of a cure-all, as well as a stimulant, but scientific research has demonstrated that its dominant influence is depressant and that its value as a drug has been far overrated. The effect of moderate and large doses is essentially one of degree, and varies in different individuals. In moderate or medicinal doses it has little effect on the pulse or blood pressure, but does change the distribution of the blood stream, as may be noted by the flushed face, due to dilation of the capillaries with a corresponding contraction of the vessels in the muscles and in the splanchnic region. It is probable that whatever good follows its use is due in large part to this change in the blood stream. Whether or not the immediate action of alcohol on the brain is a true stimulation or a depression of the inhibitory apparatus, the ultimate results leave little for debate. It is generally admitted, however, that mental vigor and energy are not increased and that the increased activity of thought is not due to a stimulation, but to a depression of the inhibitory apparatus.

Moderate doses produce a sense of well-being and exhilaration, with an increased flow of ideas and a loose tongue. With increased doses mental processes are benumbed, and the capacity for work is diminished, clear reasoning is impaired, and with increased amounts, judgment, self-control and the sense of responsibility are impaired and finally lost. Motor activity, and finally the power of speech disappear, drowsiness and coma complete the picture of alcoholic intoxication. Recovery, as a rule, takes place. Alcohol thus used over a sufficient period leads to more or less permanent impairment of the moral sense, powers of self-control and physical health; and with this damage continued debauches lead to that point where the drinker becomes little more than an irresponsible nuisance. A drunkard once made is held fast: the finer feelings and moral sense are blunted. He becomes mentally weak, excitable and quarrelsome, with a tendency to outbursts of rage and violence. In his sober moments he is indolent, neglectful of duty, and indifferent to his family and social relations.

Continued and excessive use invariably leads to intellectual and moral deterioration. Other drug habits play an insignificant rôle in the etiology of mental disease and mischief. In 1910 a commission appointed in Massachusetts to investigate the increase of criminals, mental defectives, epileptics and degenerates, states: "It is not possible to present reliable statistics on this point, but our investigations and the testimony

before the commissioner strongly emphasize the belief that there is an intimate relation between the abuse of alcohol and the amount of crime in society, and the number of epileptics and degenerates. Indeed, it is the belief of this commission, based on long personal observation, that the abuse of alcohol directly and indirectly, has done more to fill our prisons, insane hospitals, institutions for the feeble-minded, and almshouses, than all other causes combined."

The 1913 Report of the State Board of Insanity attributes alcohol as a causative factor of mental disease in 18.46% of all first admissions; and 11% of the cases first admitted to any hospital as some form of alcoholic insanity. Heredity appears as an etiological factor in 15.95% of the first admissions. At the Bridgewater Hospital during the same period, 20% of first admissions were diagnosed as some form of alcoholic insanity, and 40% of all others due in some measure to alcoholic intemperance. During the same period (1912-1913) out of a total of 4681 sentenced to the State Farm, 4136 were for drunkenness,—over 88%—and of the remaining crimes, it is safe to say that a majority, at least, were either directly or indirectly the result of intemperance. It has been estimated that 14.6% of the mental patients in the New York Hospitals are suffering from psychoses, the result to a greater or less degree, of alcoholism.

To what extent alcoholism in parents and grandparents is an etiological factor can only be surmised. Certain it is that far too frequently alcoholic excesses have existed in the ancestors, and that drunks beget imbeciles, epileptics and criminals. Not only is it directly or indirectly an important etiological factor in the various forms of mental disease, but it is the direct and immediate cause of distinctive types of insanity known as the alcoholic psychoses, presenting certain characteristics more or less in common with numerous variations and manifestations, resembling to a greater or less degree the non-alcoholic insanities.

The causes of alcoholism may be sought not only in the social atmosphere, but also in the psycho-neurological make-up of the individual; environment and heredity underlie most drunkenness. It is perhaps impossible to say which is the more important. A craving for alcohol is not inherited, but the weak and unstable nervous system which renders the individual liable to excess in all things, renders him especially susceptible. Such an individual may be born into an alcoholic environment which favors the development of the habit in a soil previously prepared by his ancestors. Heredity manifests itself by demands for larger and larger doses, with impaired resistance to its action. It has been said that the drinker drinks because he is weak, and that he is weak because he drinks. As a result, he travels in a vicious circle, from which he has neither the ambition nor will power to extricate himself.

Overcrowding and bad housing produce in-

efficient people, and the saloons exist in proportion to the inefficiency of the community. The boy comes early in contact with those wise to the ways of the world. The saloon is the club-room of the neighborhood, whose members are easily admitted and to which there is no waiting list. Here, as in other walks of life, social drinking is the custom and the proper thing. The laboring man finds an ever ready welcome, a warm corner, and friends. He has no other place for social relaxation; presumably lacking education and training in self-control, he follows the drift of the current, and from the occasional social glass he becomes the steady drinker, and finally the drunkard, with the physical, intellectual and moral deterioration so characteristic. Such a boy or man does not deliberately make of himself an inebriate. An inebriate is not admired by him; rather he is looked upon with disgust. From the occasional drink, which may or may not be considered a vice, a habit is formed, which is satisfied only by increasing doses. Gradually and insidiously there is a breaking down of the moral character, powers of self-control and judgment, until a diseased condition is established, which may end here or finally terminate in a true psychosis.

The young, the ignorant, and weak-minded are not the only ones who succumb to this insidious poison. Its use exists in all classes, and the medical profession has furnished its share of wreckage. Disregarding the psychological questions involved, drinking is a social custom transmitted to us from a time unknown. The young man of the streets or the boy in college drinks because the crowd does. It adds to the pleasure of the moment, and is considered the mark of a man. Many go no further. Others lack sufficient strength of character, and with diminishing powers of resistance, assuming that the desire to abstain exists, go on to that point where they are unable to free themselves. Some have no desire to abstain and drink deliberately, either to forget their troubles or for the pleasure of the moment. It may be asked if such a state of mind is indicative of depravity or disease. If depravity, why? All drunkenness cannot be explained on a neurological basis, yet it is so intimately associated with a defective make-up that it is difficult to separate the purely vicious from the diseased.

The mental disturbances produced present every possible variation, from simple intoxication to profound dementia. The symptoms are frequently complicated by those of other mental diseases, rendering proper classification often times difficult. Recognition is, however, of great importance, both to the individual and to the public. The alcoholic insanities are potentially dangerous, not only to the patients themselves, but to others, as they are frequently unrecognized or ignored until by some violent outbreak the peace of the community is disturbed.

Mental breakdown from alcohol is a gradual process, preceded by long and excessive drink-

ing, producing oftentimes an intangible deterioration before the definite onset of a true psychosis.

The psychoses especially dangerous are those characterized by active hallucinations and delusions. Cruel assaults and murder are a daily occurrence, and cause little comment, perhaps a word of pity for the wife or child, but no thought for their prevention. The majority of these attacks are probably the result of a drunken rage, while others are due primarily to an underlying mental disease, possibly complicated by a debauch, which is merely an incident in a pathological condition. It is impossible to consider all the manifestations of chronic alcoholism, consequently your attention is directed to a few of the more common types, exclusive of delirium tremens, seen in the hospital.

Acute alcoholic hallucinosis arising on a basis of chronic alcoholism is characterized by a sudden onset, with auditory, visual, tactile and olfactory illusions or hallucinations, accompanied by persecutory delusions and little clouding of consciousness. Recovery, with little or no intellectual damage, usually follows a first attack. Continued drinking, however, with further attacks, terminates as a rule in a chronic and permanent mental impairment, which remains more or less stationary when the patient is confined in an institution or otherwise deprived of alcohol.

Auditory hallucinations are most in evidence in this disease. The patient hears voices of friends, names, and mysterious telephone messages. He hears people talking over what is in his mind. He may hear the singing of angels or the voice of the devil: all very real, and no argument will convince him that he may by any possibility be mistaken. The voices are usually overheard and not addressed directly to the patient.

He thinks electric currents are applied, bad odors are detected, gases are pumped into the room at night, the food tastes suspiciously of poison or of some nauseous substance. Consciousness and orientation are usually clear. The patient appreciates his surroundings, and is able to see defects in others; general conduct is normal unless influenced by the delusions which are based on the hallucinations. The duration of the disease is variable. It may last for a few days or several weeks or months. Delirium tremens is closely allied, and must be differentiated, not only for the purpose of treatment, but also for legal reasons.

In delirium tremens, however, visual hallucinations predominate, all sorts of animals, reptiles and fantastic forms are seen moving about. Restlessness, tremor and fear accompany these frightful visions. The delusions are fugitive. Consciousness is clouded and there is disorientation: apprehension and attention are impaired and ideas are flighty. The duration is shorter and usually terminates by crisis. In well marked cases the diagnosis is not difficult, but, as in many other conditions, there are border line cases re-

quiring time for a diagnosis and proper classification.

There are two common types of chronic delusional states differing in mode of onset and clinical characteristics. In one there is usually a history of previous attacks of delirium tremens, or acute hallucinosis, in which there has been an apparent recovery, or the disease may represent the termination of an acute alcoholic hallucinosis. If preceded by an acute attack, the acute hallucinations may have been in part corrected. The hallucinations of hearing develop again. The patients may complain that others are reading their thoughts, that voices are troubling them or electric currents are being applied. The delusions are fantastic and usually not elaborated, remaining the same from month to month. School knowledge, memory, orientation and consciousness are usually retained and the patients present a fairly normal appearance to the casual observer, although a thorough and careful examination will demonstrate a considerable degree of mental weakness. At first they may be irritable and impulsive, later becoming more pliable and humorously. They lack energy and initiative; as a rule the disease remains stationary under institution conditions, or when removed from alcohol. In time the delusions and hallucinations may subside, leaving the patient more or less demented and a burden for support by either the family or state. With continued drinking the disease is progressive and finally terminates in a deep dementia.

The other type, sometimes called alcoholic paranoia, is characterized by the gradual development of a paranoid condition in middle life in subjects who have been steady drinkers, without previous acute mental disturbance. They may or may not have been considered drunkards in the ordinary sense. In the beginning the diagnosis is difficult on account of the plausibility of the delusions which must be differentiated from the actual conditions and facts. They may state their troubles with emotion and with the appearance of truth. The disease is characterized by delusions of suspicion, persecution and jealousy, usually centering about the wife or husband. Aside from judgment defect, based on the delusions and general inefficiency of the drunkard, there may be little evidence of gross deterioration. Hallucinations are usually absent. Such patients misinterpret the most trivial acts as being evidence of marital infidelity. They may question the paternity of their children and accuse the wife of adultery. They may have delusions of poisoning. They neglect business and family. Although delusions regarding the mate are the rule, they develop erroneous ideas concerning others. They may attribute their trouble to jealousy or ill-feeling. The loss of a position, the result of their own incompetence and immorality, is considered the unfriendly act of the employer.

The subject of alcoholic paranoia may become

moody and revengeful, and if directly under the influence of alcohol, truly a menace.

The course of the disease is progressive, unless removed from alcohol, when the delusions remain more or less stationary and in time may subside. The return to the community and home is invariably followed by further drinking and a recurrence of the delusions. There are many such cases of moderate degree holding vague and visionary morbid ideas, going the rounds of the jails and work-houses. The majority are comparatively harmless, but they are of little economic value. The following cases, illustrative of the types seen in hospital practice, emphasize the fact that the drunkard is far too often suffering from an unrecognized disease rather than being merely a slave to a habit. Had these cases been recognized earlier, tragedies involving many might have been averted.

CASE 1. Male, age 47. Entered Bridgewater Hospital in March, 1913. Born in Ireland; came to America in 1882; common school education. No history of insanity in family. Father a hard drinker and sister and brother reported as intemperate. When a boy worked in a brewery with his father, who occasionally gave him beer, which he began to drink in moderation at 14 years of age. Claims to have refrained from drinking for two years after coming to this country. He worked in a cotton mill about a year and a half after landing. Since then has worked most of the time in clubs and hotels as waiter, bell-boy and kitchen helper. He has had many positions, many of which were lost on account of his habits. Has been arrested five times for drunkenness. He admits having hallucinations of hearing at three different times; the first in 1910 or 1911, when he heard voices speaking in a foreign language. He was unable to understand what was said, and thought that people were following him. While sitting by the Charles River he heard the voices, slashed his throat and jumped in, but the cold water brought him to his senses, when he swam about until rescued. He was treated at a general hospital. The voices disappeared in a few days. During the year 1912 drank to excess whiskey and beer. About two weeks before the commission of his crime, had been hearing foreign voices and thought people were after him. Christmas Day, 1912, while drinking with his sister and brother-in-law, words were passed which led up to the killing of his brother-in-law with a razor.

On admission to the hospital in March, 1913, the acute symptoms had largely cleared up. His attention was good and he told the history of his past life in detail. He said that his conscience did not trouble him and that he did not think God would make him suffer for the crime. "The reason is, Doctor, it was forced upon me, and I cannot remember anything about it. It seems that if God had intended me to suffer I would have had bad dreams and my conscience would trouble me." During the examination he was nervous and tremulous. There was a fine muscular tremor of the tongue, and twitching of the facial muscles. He realized that he had been sent to the hospital and that he had been insane. He no longer heard voices and he realized that they were hallucinations of hearing. However, he did not appreciate until later that a whistling sound in his ear at that time was also an

hallucination. On admission he had partial insight as to his condition, and realized that the trouble was caused by drink.

He had no recollection of the immediate details of the crime, although his memory was otherwise excellent. His memory concerning the details of the crime returned about six months later. At the present time he gives one the general impression of being damaged; is somewhat shaky and nervous, but presents no gross evidence of insanity. He is a good worker and takes rather more interest in current events than the average man in his station in life.

This is a case of chronic alcoholism or the disease "inebriety" complicated by three attacks of acute alcoholic insanity. There are three periods during which he had hallucinations of hearing and delusions of persecutions based thereon. In one of these there is an attempted suicide, and in another a successful homicide. It is probable that under the routine of institutional life and removal from alcohol he will maintain a fair degree of mental health and that further deterioration will not take place.

CASE 2. Male, age 48. Sentenced to State Prison Feb. 25, 1905, for manslaughter. Committed to the Bridgewater Hospital April 17, 1905. The medical certificate states that when first admitted to the State Prison he was "dull and stupid," and later that he was "very depressed." He heard men talking about what he was thinking of; believed the other prisoners could hear him think; had headache and slept poorly, sometimes waking in the night covered with perspiration and his heart beating so that he could hardly breathe. Parents alcoholic, and he began to drink himself at 15 years of age. Arrested several times for drunkenness before present and last arrest. Admitted that he had been drinking to excess before committing the crime, but has little recollection of details. On admission to the hospital said: "I imagine that my thoughts are other people talking to me. They say things, I think, sometimes agreeable; other times not." Admitted having been troubled this way for about ten years, and also during a five-year period of abstinence; especially when he had any cause for worry. Attempted suicide several years before his crime. His memory was poor and he had little knowledge of current events. He was unable to tell when he was sent to State Prison. Felt badly over death of his wife, but did not greatly blame himself. For several years he had olfactory and auditory hallucinations, but at the present time denies them. He now shows distinct signs of deterioration. His ideas and conversation are limited, attention is blunted, retention, insight and judgment poor. He is indifferent to his surroundings and to detention in the hospital. He is a good worker.

A case of chronic alcoholic insanity existing and unrecognized for ten years before the homicide. The fact that he was drinking at the time obscured the real condition, which was soon recognized by the prison officials. Under institutional routine and away from liquor he is likely to remain in his present condition indefinitely. If released he would, without doubt, return to his former habits and again become a source of danger.

CASE 3. Mill superintendent, age 62; born in England. Came to this country at twenty years of age. Admitted to the hospital January 19, 1912, charged with the crime, "Assault with a dangerous weapon." Father alcoholic. Patient began to drink at the age of 12, and has used liquor to excess for many years. Several times during his life suffered lapse of memory, discovering himself later in an adjacent town with no recollection of how he arrived there. He thinks that his present trouble followed testimony given by him in 1909, which he believes was displeasing to his employer, with whom he had been associated for twenty years, and that from this time his employer was unjustly prejudiced against him. Became suspicious; believed that he was being persecuted, and that his work was unjustly criticized. On account of his habits and inefficiency he lost his position in April, 1910; left shortly after for England, returning to this country in September. While in England and after his return he drank to excess and was treated for delirium tremens.

Between September, 1910, and March, 1911, he made several trips to the office of his employer for the purpose of obtaining a settlement. Claimed that \$50,000 was due him as a commission, in addition to his regular salary. He had no evidence to show that such was the case. On the contrary, his employer held his receipts for payments, covering twenty years. Patient claimed that he allowed this large sum to accumulate to his credit with no accounting, as he had absolute faith in his employer. In March, 1911, he purchased two revolvers in Boston, and carried them with him for the purpose of self-protection when he went to the offices of the mill to demand a settlement. During the controversy attempted to shoot his employer and one other. When arrested several unsigned checks for large amounts were found on him. He has persistently denied any recollection of the details of the assault, although his memory for events before and after is good. At the trial he was acquitted by reason of insanity, but through some technicality was released. A few days later he was re-arrested and committed to the hospital as a case of epileptic equivalent. He remained in the hospital over some two years, when he was taken out and brought to trial for the assault on the other party who was present in the office at the time of the attack. At this trial medical witnesses testified that he had recovered from the so-called epileptic equivalent, and no testimony was put in by the state to show that he was still insane. He was convicted, and sentenced to State Prison, in spite of this medical testimony and the fact that he had previously been acquitted by reason of insanity.

The essential points in the diagnosis are prolonged alcoholism, delusions of suspicion and persecution, the fear of bodily harm suggesting the purchase of two revolvers, indifference to his family and business affairs, a belief that a large sum of money was due him, and his superficial reason for allowing so large a sum to accumulate to his credit with no accounting. On admission to the hospital he talked pleasantly and intelligently on all subjects. He was correctly oriented, showed good judgment on general affairs, but poor judgment concerning affairs connected with his trouble. He had apparently maintained delusions concerning his former employer for two

years or more, and, without doubt, the delusions were aggravated by continued drinking. The debauch during which he committed the assault was merely an incident, but sufficient to classify him as a criminal rather than one suffering from mental disease. Thus far he has adapted himself to the routine of prison life and will probably continue as an orderly prisoner. It is possible that he will abstain when released, but a return to his former habits is to be expected.

The problem of drunkenness is far reaching, and its solution beset by tradition, social customs, business interests and indifference. It has too long been regarded from the policeman's point of view as an act punishable by arrest, fine and imprisonment.

It is unfair to classify all inebriates as criminals and to treat them accordingly; such methods are futile, illogical and tend only to arouse resentment and antagonism. Punitive measures have failed to diminish to any appreciable degree the plague of drunkenness. On the other hand, the medical profession has accomplished little from a curative point of view, and has little to offer, save a protest against such methods, the general attitude of mind regarding the inebriate, and the source of his production, social drinking. The inebriate, who under the influence of alcohol commits crime, places himself as a rule in the criminal class, unless there is an obvious degree of mental defect. Such defect may consist of a definite psychosis and go through the court unrecognized if it is shown that he was drunk at the time of committing a crime, but not shown that the debauch was simply an incident in a chronic disease of the nervous system. The law judges of responsibility from one point, whereas the physician, in contact with life from another angle, may have an entirely different view. Yet, within the medical profession through an honest difference of opinion, or lack of knowledge and a full appreciation of the significance of the signs and symptoms of the disease, the drinker charged with crime or drunkenness, does not always receive the consideration which is his due. Society having made the drunkard, has no moral right to punish him, although it may confine him for therapeutic purposes or remove him as a menace from the community. It is obvious that for some institutional care is the only remedy. How long such custody should be maintained must be determined in each individual case, and even then we shall be disappointed with the results. Hope for the cure of the drunkard is remote unless there is a sincere desire on his part to be cured. It is useless to expect the poisoned alcoholic to act as a normal individual. We know that various changes occur in the viscera, blood vessels and brain, and that the degree of destruction varies in the individual and with the quantity taken. Possibly the damage is purely functional, but even then it is no less disastrous so far as results are concerned. The promises, remorse and apparent sincerity of one recovering from a debauch, will

deceive even those who have had the most experience. All sorts of excuses are made except the real one, which is the diseased nervous system and its unrecognized demand for alcohol.

The drunkard even deceives himself, but that his declarations and promises for the future are merely empty phrases is only proved by his subsequent conduct. He may go forth confident in his strength, but with a lurking desire or subconscious intention for a drink, which he feels so sure of handling, but which is surely his undoing. Whether or not the inebriates now living are cured is of little importance compared with the saving of future generations. Of those who early in life begin the moderate use of alcohol, none can foresee the degree of degradation which may follow. The habit is usually established at a time when youth is easily led, when it is considered more or less necessary to do as the others do, or perhaps go one better. It is during this period that one may have hopes for the future, for up to the present time the results of all known methods of treating inebriety are unsatisfactory and discouraging. We cannot say an individual has been cured unless he stays cured. An occasional cure does not prove any method. If prevention is the remedy, how shall we reach the boy in college or the young man in the shop? Can he be reached under existing social conditions, which license the manufacture and sale of intoxicating liquor? Abstinence has not, and will not exist when liquor is obtainable, and yet it is the only sure means known for the prevention of drunkenness.

Russia has autoeratically pointed the way to national prohibition, and the recently enacted narcotic law of this country is a step in the same direction. If prohibition is expedient in a country at war, would not the efficiency of a country at peace be correspondingly increased? Although prohibition has not been an unqualified success, it has, however, diminished the amount of drinking in the so-called dry territory, and if enforced as vigorously as the Government pursues Kentucky moonshine, drunkenness would necessarily be checked. Public sentiment is wakening, and will in time be in a receptive mood for more active or radical temperance reform. If drunkenness is a disease, and prevention the remedy, it is a problem in preventive medicine and as such should receive the serious thought of the whole medical profession. The responsibility for the health of the people, and incidentally their prosperity, is ours, and thus far we have failed in performing our full duty in meeting it. It is not a question of reform from a sentimental, moral or religious standpoint, but a public health measure which we have looked upon with apathy and indifference. Temperance reform of the past has made little progress, for the reason that it has approached the subject from the wrong quarter. People do not like to be told what they should or should not do because of the expense or because someone be-

lieves a certain act to be a sin. They prefer to decide such matters for themselves. We should disregard the question of whether it is right or wrong, and present the subject as a health measure as vigorously as we have pursued the tubercle bacillus and escaping sewer gas. People should be taught by precept and example that moderate drinking undermines mental vigor and bodily strength; that chronic alcoholism is a disease and that a certain number of moderate drinkers will surely succumb.

Original Articles.

THE CEREBROSPINAL FLUID IN DIAGNOSIS AND IN TREATMENT.*

BY W. H. WATTERS, M.D., BOSTON.

In preparing a paper upon the subject of the cerebrospinal fluid it has been the aim of the writer to give a general idea of the present status of our knowledge of the cerebrospinal fluid such as might appeal to the general practitioner rather than to present the more technical side in an attempt to interest the specialist alone.

That fluid of some kind existed in the cavities of the brain has probably been known since the time of Galen. Concerning its functions there has been a great amount of speculation. By some it has been considered to be the home of the animal spirits. By others it was thought to be a sort of a lubricant. For centuries, however, practically nothing was known about it and in fact even at the present day a great deal of our supposed knowledge is rather nebulous.

The first serious attempt to remove cerebrospinal fluid was probably made by a Dr. Cornings, an American who in 1885 performed ventricular puncture and in 1889 made a lumbar puncture preceded by a laminectomy.

From the standpoint of actual investigation and extensive study Quincke may be justly called the originator of lumbar puncture as now widely performed. He in 1891 published an epochal paper upon the subject and by so doing opened up an entirely new field for investigation. So complete was his study that the technic employed by him is still followed by almost all workers.

Technic. It will certainly be unnecessary in this place to give in detail the method of performing lumbar puncture. Probably most of you have done it many times. In my personal experience, it has been found advantageous to use some local anesthetic, usually ethyl chloride, to deaden the pain of skin puncture. Occasionally in hyperesthetic individuals and in children

light ether or chloroform anesthesia is advantageous. A gold needle similar to those used for alcohol trigeminal injections has proven very satisfactory as it lasts longer than the ordinary ones, where rusting rather rapidly occurs. My former routine of lateral puncture has now been replaced by the median one. The latter is usually less difficult and less painful, particularly in intraspinal injections.

The reasons for doing lumbar puncture are varied, but almost all depend upon the attempt to clear up an otherwise uncertain diagnosis, or as a preliminary to the intraspinal introduction of some remedial substance. At times it is performed for therapeutic reasons in cases where increased intracranial pressure is suspected and its temporary relief is thought to be desirable. The principal contra-indication is posterior cerebral, or particularly cerebellar, tumor. Here the procedure must be most carefully followed and only a very small amount of fluid withdrawn.

Physiology. It may be well in passing to say a few words about the physiology of the cerebrospinal fluid. Until very recently much uncertainty has existed concerning the origin of the fluid, some authorities claiming it to be merely a transudate, while others considered it to be a true secretion. Probably the most satisfactory studies in this connection are reported in the September, 1914, number of the *Journal of Medical Research* by Cushing and Weed. It can now be quite definitely stated that the fluid is secreted by the choroid plexus, part going to the lateral ventricles and part to the subarachnoid space. Some may also come from the perivascular system. After secretion there is probably a more or less definite circulation toward the point of exit, which seems to be the arachnoidal villi projecting into the dura, particularly near the sinuses and the dural vessels. The rapidity of the secretion apparently varies under different conditions of pressure. When the pressure is released by lumbar puncture and fluid is removed, it has been demonstrated to have been rapidly replaced in a very short time.

Physical Properties. Under normal conditions the fluid is perfectly clear, has a specific gravity of 1003-1010, and is slightly alkaline. Occasionally it is more or less pinkish in color, due to penetration by the aspirating needle of some small blood vessel. Such blood has no significance. Under certain pathologic conditions blood may actually be present in the fluid, either fresh, pinkish red, or altered, brownish red. Among causes for such may be mentioned intraventricular hemorrhage, hemorrhagic pachymeningitis, and various forms of local injury to the spinal cord from external violence.

Pressure. While divergent opinions exist concerning the value of pressure determination at the time of lumbar puncture, it seems wise to ascertain it always. This procedure is particularly desirable in watching for the danger signal in removing fluid prior to intraspinal

* Read at the February meeting of the Norfolk District Branch of The Massachusetts Medical Society. The work covered is based on studies made, largely, at the Evans' Department of Clinical Research and in the laboratories of Boston University.

injections and in ascertaining the amount of serum that can be safely introduced. In my personal experience, uniformly placing the patient on the side, in bed, and always using a water manometer, the average pressure is found to vary from 50 to 80 m.m. In pathological states it ranges from 30 to 300 m.m., or even higher. Meningitis and brain tumor are particularly liable to be accompanied by high pressure. Many cases of tabes also show this increase, while some do not. From personal observation the earlier and more active cases seem to have this higher pressure, while the more advanced or latent cases may be more nearly normal. Incidentally the former have manifested a more satisfactory degree of improvement after intraspinal salvarsanized serum than have the latter.

Examination of the cerebrospinal fluid can be divided into three sub-divisions, chemical, microscopic and serological.

Chemical. From the standpoint of diagnosis, determination of the presence and amount of protein is the most important procedure. This substance is present in the normal fluid in such minute amounts as to be unrecognized by the usual clinical tests, but is found by them when present in increased amount. Several such tests are now commonly used. That introduced by Nonne and Apelt consists of the mixture of equal parts of the spinal fluid and neutral saturated solution of ammonium sulphate. An opalescence or turbidity occurring within three minutes is said to indicate a globulin excess. The Ross-Jones method also uses ammonium sulphate, but by superposition as a ring test instead of a diffuse mixture. A popular method in this country has been devised by Noguchi. In this a 10% solution of butyric acid in saline is used as the indicator (add .5 c.c. butyric acid solution to .1 c.c. fluid, boil, add 1 c.c. normal sodium hydroxide and boil). Globulin in increased amount is indicated by a flocculent or granular precipitate. The most satisfactory test in my laboratory is that introduced by Lange, as it gives not only qualitative but quantitative results. It depends for its efficiency upon a solution of gold chloride prepared in a very careful manner, the various steps of which will not here be described. Various other tests have been devised, but are probably less satisfactory.

The clinical significance of protein products in the cerebrospinal fluid is not such as to enable one to make a diagnosis from it alone. As a symptom or indication, added to others of a clinical nature, it is often decidedly valuable. In acute exudations with inflammation of the meninges, in hydrocephalus and in various forms of cerebrospinal syphilis, including tabes and paroxysms, globulin is usually increased. Its absence is often of greater significance in certain cases than is its presence in others. To illustrate: a case of tabes with globulin in excess comes for intraspinal or intravenous salvarsan treatment. Here a positive Wassermann may frequently be

changed into a negative one, but often without appreciable effect upon the globulin content. Under these conditions the prognosis is much less favorable than in others where the amount of globulin shows progressive decrease. In other words, the Wassermann reaction is at times more readily influenced than is the globulin, and unless the latter shows a corresponding degree of improvement the future outlook is less hopeful.

Apart from globulin, the spinal fluid is examined chemically for sugar, acetone and diacetic acid in diabetes, but such tests offer little from the diagnostic standpoint. Arsenic has at times been demonstrated in the fluid for a number of days subsequent to intravenous injection of salvarsan and neosalvarsan. Urotropin has also probably been demonstrated.

Microscopic Examination. This gives much more important results than does the chemical examination. Here attention is first directed to the cell count, then to the varieties of cells, and finally to any bacteria that may be present. The cell count should be made as soon as possible after the fluid is withdrawn. The technic is similar to a reversed leucocyte count, as far as preparing the specimen is concerned. A "white" pipette is filled to the mark .5 with a staining fluid and then to the mark 11 with the fresh, thoroughly mixed cerebrospinal fluid. The ordinary Turck counter is then used, or better the Fuchs-Rosenthal modification. The cells, stained lightly, are then readily counted, and at the same time the varieties can be determined. The normal cell count varies between 2 and 10, probably averaging 5 to 8. For obvious reasons, if there is admixture of blood due to penetration of a vessel at the time of puncture the disks must not be counted. In fact, from the standpoint of cytology, blood disks are practically eliminated. Departing from normal, the cell count may go to fifty, one hundred or more in tabes or tuberculous meningitis, to thousands in some of the acute infectious forms of meningeal inflammation. A count, then, of more than ten cells per cubic millimeter may usually be regarded as a departure from normal and an indication that some cause for such a departure be sought for. Of first importance in such a search is the estimation of the several varieties of cells present. In the normal fluid the cells found are of the lymphocyte variety, either large or small, but under pathological conditions other varieties appear. Thus a lymphocytosis may suggest, as will later be seen, a tuberculous meningitis, a tabetic lesion, a brain tumor, etc. On the other hand, a polynucleosis is equally able to make one consider the presence of some acute inflammatory disturbance. Differentiation between the small and the large lymphocytes is of no diagnostic significance as far as our present knowledge goes. After much prolonged research, various workers have devised and described very elaborate classifications of the different cells sometimes found, but I can see no practical ad-

vantage over the simple differentiation above described.

As will be noted later, one of the most important features of cerebrospinal cytology is the progressive changes that are observed as various forms of treatment are instituted to remedy or cure the pathological condition present. Here we often have a prognostic element as well as a diagnostic one.

Having now made the cell count, both qualitative and quantitative, our attention is next directed to the possible bacterial content. It must be noted that while the bacteriological examination is here mentioned rather late in the course of the work, its actual performance must be the very first procedure, and one begun very promptly lest outside contamination occur. Emphasis is again placed upon the need of absolute sterility of all instruments, utensils and containers. Frequently an entirely adequate diagnosis can be made by taking the microscope and a little stain to the bedside. By this means the presence of the intra-cellular meningococcus can often be demonstrated and many valuable hours saved by immediately instituting the proper treatment. The pneumococcus is also often found with its characteristic halo, as may be the streptococcus, the staphylococcus, the influenza bacillus, etc. It is always well to make cultures upon various culture media in order to allow for further more detailed study. Detection of the bacillus tuberculosis presents a much more complicated problem. When the cell count is normal the search for the bacilli is usually less thorough and painstaking than when a pleocytosis is present, as the former somewhat contra-indicates tuberculosi, while the latter may strongly suggest it. Microscopic examination of such a suspected case consists of study of a carefully centrifugated and stained sediment. Sometimes the bacilli may be enmeshed by adding a few fibres of absorbent cotton to the centrifuge tube. Always few in number, a prolonged search is almost invariably necessary. It must be remembered that a vain search by no means excludes the possibility of the presence of the disease, but that guinea-pig inoculation and tuberculin test of the patient are then in order.

Cerebrospinal Serology. This subject at once opens up a topic to which there can scarcely be placed any limit, namely, the Wassermann reaction. I can imagine the looks and feelings of disapproval among this audience did I here take the opportunity of launching out upon a dissertation of the Wassermann reaction. Suffice it to say that I will spare you such an imposition. As this is one of the most important of the more recent tests and is often of vital importance in neurological investigation it cannot be passed without some notice however. In the first place the Wassermann reaction cannot be regarded as an absolutely specific test, because the antigen employed may have nothing whatever to do with syphilis or its products. A normal beef heart, a human heart or a guinea-pig heart seems to be

equally as efficient as a source of antigen as does the congenital fetal liver. Some of the more delicate antigens, particularly those to which cholesterolin have been added, have in my hands proven even too delicate to be fully relied upon in diagnosis, but have been of much value in determining the time when it is safe to desist from treatment of the known positive case. In other words, the cholesterolin antigen is less reliable than the others in positive cases, but more dependable in negative ones. It is my custom, therefore, always to run through duplicate tests with both antigens prior to giving definite reports. By so doing it is believed that we make but comparatively few errors in the test. Errors there must be in any extensive series of cases, and it is at times a question on which side one may err. At such times the patient is always given the benefit of the doubt in the diagnosis of the disease, when it is a question of discontinuing treatment. The clinician who depends absolutely upon a single positive Wassermann without other corroborative symptoms or history is the victim of an unduly or unwisely enthusiastic pathologist, and will at times bitterly regret it. It is far from my intention to belittle the test, but nothing can do more harm than to give to it undue credence where not justified. Of course the more often a positive result is obtained in such cases the greater the probability of the presence of the disease.

The elaborate measures necessary in performing the test cannot be here considered, nor will any time be now devoted to its occurrence and significance in the blood serum. The older Wassermann system, with sheep's corpuscles and antisheep amboceptor is the one of choice in the laboratory at Boston University after considerable experimentation with others, particularly Noguchi's. Spinal fluid to be tested should be not more than two or three days old, and even during that time it should be kept cold and sterile. My custom is to place the major dependence upon the test where the amount of fluid used is twice the amount of blood serum used for the same system. A greater percentage of positives can be obtained by using increasingly larger amounts of fluid, but with, I believe, less dependable results.

Having thus briefly considered the various contents and attributes of the spinal fluid, it may be well to turn our attention to and study equally briefly those diseases in whose recognition examination of this fluid plays a part.

Epidemic Cerebrospinal Meningitis. This disease is now known to be caused by the meningococcus, or as it was earlier called, the diplococcus intracellularis meningitidis. It is characterized by an acute purulent exudation into the subarachnoid space and by considerably increased pressure. The cerebrospinal fluid appears as a turbid, at times almost milky, substance. Upon chemical examination it contains, as might be expected, a greatly increased amount of globulin, while the microscope shows a very high cell

count. These cells, the very great majority of which are polynuclears, contain a varying number of the biscuit-shaped diplococci that so closely simulate gonococci in appearance. Diagnosis in such a case is very easy. It is particularly interesting to note the progressive decrease in the cell count and the diminution in the number of bacteria that in favorable cases follows the administration of the specific treatment.

Acute Suppurative Meningitis. This form of the disease differs from the preceding principally by being caused by non-specific bacteria and by not being benefited by the specific treatment, antitoxin. In my experience the streptococcus has been the most frequent invader, with the pneumococcus a close second. Staphylococcus has been encountered less frequently. Typhoid bacilli, gonococci, diphtheria bacilli, I have not yet found. They are, however, occasionally present. Here, as in the meningococcus type, the fluid pressure is increased, the globulin is in excess, the cell count is high and the causative bacteria are found both by direct microscopic examination and by culture. In certain cases under personal observation, it has been most gratifying to note the rapid, even though temporary subsidence of symptoms following lumbar puncture and removal of a considerable amount of fluid. The removal of the excessive pressure has been followed by a rapid cessation of the pain and amelioration of the allied symptoms. A gradual return of the unfavorable condition due to gradual re-accumulation of fluid has been repeatedly successfully relieved by further punctures. By many repetitions of this method I have seen cases entirely recover that seemed to be otherwise entirely hopeless. When it is remembered that by so doing fresh supplies of fluid are secreted, bringing to the battlefield new recruits in the form of increased amounts of antibodies from the blood, the logical reason for such a procedure may be understood. These antibodies are at best not abundant and it may not be impossible to hope for some new method of attacking the disease in the not distant future.

Tuberculous Meningitis. Different from the other varieties of meningitis, the fluid in the tuberculosis form is clear, or at most but slightly opalescent, globulin as a rule is increased, and pleocytosis is usually found, but occasionally a normal cell count is encountered. The increased number of cells is composed largely of lymphocytes. When such an increased lymphocytosis is discovered in a child or young adult with symptoms of meningeal irritation the presence of tuberculosis is always suspected, entirely irrespective of the ability to demonstrate tubercle bacilli. The increased permeability of the meninges to nitrates in tuberculous meningitis may be of some value as a diagnostic factor, but of this I can say nothing from personal experience.

Cerebral Hemorrhage and Cerebral Thrombosis may or may not be of syphilitic origin. The Wassermann reaction will differentiate the two

conditions, once the anatomical diagnosis is made, but is of no assistance in gaining that diagnosis. Blood may or may not be present in the spinal fluid in hemorrhage, dependent upon whether the bleeding occurs near the ventricles or the subarachnoid space. In cases of suspected brain tumor, lumbar puncture should be performed with unusual care for fear of unduly disturbing the already altered intracranial pressure equilibrium. But small amounts of fluid should be withdrawn, and often less reaction ensues if the pressure is maintained by injecting an equal amount of saline. Pressure in these cases is very often increased, and at times pleocytosis is present. It is stated that in hydrocephalus beneficial clinical results can follow repeated punctures, reducing thereby the high pressure. Anterior poliomyelitis has been extensively studied in recent years, and an article by Peabody, Draper and Dochez of the Rockefeller Institute gives much information concerning the spinal fluid. They determined the presence of pleocytosis with low globulin content very early in the disease, this gradually changing to a low or normal cell count, with increasing globulin as the symptoms became more pronounced. The virus, when experimentally introduced into the blood, passes to the fluid in from three to five days, probably by way of the choroid plexus. The fluid in epilepsy shows nothing of definite diagnostic value.

Syphilis. That condition, for the detection and treatment of which by far the greatest number of lumbar punctures are now being performed, is syphilitic involvement of the nervous system. Now that tabes dorsalis or locomotor ataxia and general paresis have been proven to be definitely due to the treponema pallidum, these two diseases can be associated with cerebrospinal syphilis, and all three studied together.

Without any doubt the central nervous system often shares with the rest of the body in receiving numbers of the treponema at that time, midway between the primary and secondary stages, when there is a general diffusion of the infectious agents throughout the body. Cases have come to the attention of most of us, of the appearance of a clearly defined cerebrospinal syphilis from five to eight months after the initial lesion.* Incidentally it may here be noted that the increasing tendency of many physicians of refusing to dismiss as cured any case of syphilis without first demonstrating a perfectly normal spinal fluid is most commendable and deserves more general acceptance. Kaplan well suggests the idea that "the treponema pallidum permeates the entire system of a patient in the beginning of the disease, gradually settling in various tissues, which will later determine the type of luetic infection, as e.g. visceral, vascular, cutaneous, nervous, etc." If this is true the syphilito-

* Wile and Stokes estimate that about 60 per cent, of all secondary cases show some involvement of the central nervous system. They state that as a possible guide to prognosis and as an aid to diagnosis spinal puncture in cases of secondary syphilis can scarcely be overestimated.

gist can foretell with some precision those patients who, if left alone, will be liable to develop late cerebral manifestations. In other words, careful examination of the spinal fluid should be made in every case of syphilis treated in the primary or secondary stages, prior to discharging the patient as cured. This, of course, is in addition to repeated Wassermann tests of the blood. If such a procedure is instituted, and when evidence of the disease is there found, proper therapeutic measures are taken to remove it, the incidence of cerebrospinal syphilis, tabes and paresis will be very greatly diminished. We have another illustration of the old saying, "an ounce of prevention is worth a pound of cure." In this early stage the organisms are comparatively accessible and are much more amenable to treatment than when they later become deeply buried in relatively avascular tissues. The question now naturally arises, what are the serological indications of early syphilitic involvement of the central nervous system or of impending appearance of symptoms? In response it may be stated that a positive fluid Wassermann, a globulin excess, or a pleocytosis, either combined or singly should, when accompanied by a positive serum Wassermann or a luetic history, always render one suspicious of cranial involvement, even in absence of symptoms. When with these one finds the Argyll-Robertson pupil, a tardy or uncertain foot, unsteady station, an absent knee jerk, some speech disturbance, an uncertain memory, or any one of several other single symptoms, the indication for energetic treatment becomes still stronger. It is gratifying to note the prompt response in serology that usually follows the institution of such treatment. The cell count falls steadily from 100 to near normal limits, the globulin excess subsides and the intensity of the Wassermann progressively decreases and hopefully entirely disappears. Later serological tests should be made after lumbar puncture in order adequately to watch the progress of the patient. In such a case the subsequent appearance of tabes or paresis would seem to be highly improbable. Not only should the above procedure be followed in every case of syphilis that may be encountered in future, but it should be equally applicable to those cases that have been treated in the recent past and are now apparently cured. In such cases lumbar puncture would without doubt show some with distinctly positive serology, cases that are in all probability prospective subjects for future neurological trouble. I am aware that some will consider these opinions to be those of an enthusiast and not suitable for practical application. Doubtless they may never be universally applied, as for various reasons all syphilitic patients cannot be subject to such tests, yet I fully believe that the facts already gained by spinal fluid examinations and clinical experience entirely bear them out. In a comparative sense it is easy to bring our remedial agents into contact with the syphilitic organisms when they are on

or within the meninges, freely accessible to the blood stream. Vastly more difficult or impossible is it to reach them, when after months or years they are found deep in the tissues with very poor blood supply. If serologic tests indicate the need of efficient therapy in early syphilitic meningeal irritation they equally well indicate it in the more pronounced clinical manifestations of the disease. These manifestations are varied, dependent upon the location of the infectious focus, and are all grouped under the general head of cerebrospinal syphilis. In the spinal fluid the constituents vary considerably, dependent upon the areas involved. The most constant abnormality noted is the excessive pleocytosis. The cell count is the highest found among all the syphilitic nervous diseases, it being seldom below 100 and often as high as 1000, or even more. Such a count, consisting as it does mostly of lymphocytes, is an indication of active meningeal irritation. Globulin is present in excess in the larger percentage of cases, while the fluid Wassermann may or may not be positive. The serum Wassermann is usually positive. Here again the great value of cerebrospinal fluid examination is found, not merely in assisting in diagnosis but in ascertaining the efficiency of the therapy employed and the period of time over which it should continue. I assume throughout this entire paper that it is now taken for granted that observation of clinical symptoms is never a sufficient indication of the efficiency of the treatment or the time when it may with safety be discontinued. Did time permit cases might be cited admirably illustrating this point. Up to this period, therefore, that of cerebrospinal syphilis is the time par excellence for a favorable prognosis under efficient therapy.

If we grant the assumption of some neurologists that the treponema now pass from the meninges to the cerebral tissue and then bury themselves deeply into that tissue, as indeed we know they do, we pass from the realm of the favorable to that of the unfavorable, from the hopeful to the unfavorable prognosis, from cerebrospinal syphilis to paresis. As we make this transition our cerebrospinal fluid also shows changes. As the meningeal irritation has largely subsided the high cell count is replaced by a low one; this is the most important alteration. Globulin continues to be found in excess, and both the serum and the fluid Wassermann are positive in a greater percentage of cases. In fact the serum Wassermann is practically always positive until a very late stage of the disease, when it occasionally disappears. The gold chloride test is supposed to be of particular value here, but not sufficient data have been accumulated to speak of it with certainty. Whatever treatment is instituted should be carefully followed by serologic study, the aim being particularly to render the strong positive Wassermann less active or negative. How much can be done by some of the later methods is still problematic.

It is safe to say, however, that the great desideratum is early diagnosis, in order to attack the organisms before they are fully entrenched.

Tubes Dorsalis. In this disease the fluid findings are notably variable, and as such seldom render possible a definite diagnosis apart from the clinical symptoms. The Wassermann reaction is probably as often negative as it is positive, although the serum Wassermann is usually positive. Globulin may or may not be present in excess. The most frequent and important departure from normal consists in an increased cell count. This varies from 15 to 100, seldom going higher. The cause of the varied findings is probably found in the stage of the disease manifested by the patient at the time of the puncture and in the activity of the infection.

Assuming this to be correct, then fluid examination becomes of much importance as a means of ascertaining the stage of the disease and of giving a prognosis. It also offers a very valuable guide to the advisability of instituting active treatment. It seems safe to say that a fluid showing pleocytosis, globulin excess and a positive Wassermann is indicative of more hope from active treatment than is one where the findings are practically all normal. The reason is that the former is a more recent or more active infection, while the latter represents a comparatively pure degenerative process. Did time and scope of this paper permit, a discussion of the more recent forms of therapy in tubes might be of much interest, particularly the salvarsanized serum, mercurialized serum, etc. Such is at present inappropriate. Selection of suitable patients for such can only be made by serologic as well as by clinical study, and it is impossible adequately to follow up the results of such without further laboratory studies of the aspirated fluid. Allow me to illustrate. A case of tubes comes to the hospital. In his serology there is but little or no departure from normal. He will usually show posterior spinal sclerosis and an inactive stage of the disease. He is sent home with an unfavorable prognosis, possibly after one salvarsan injection for provocative purposes. It is not fair to expect any treatment to replace tissue actually destroyed and functionless. Another case comes with a cell count of 75, a globulin in excess, a positive Wassermann in both fluid and serum. Here we believe there exists more or less active process in the meninges and offer to the patient more or less hope from treatment. This hope must lie, not in replacing already destroyed tissues, but in arresting the progress of destruction and in allowing the subsidence of the meningeal exudative processes. It is thus often possible to remove the lightning pains, to bring back to normal the areas of hyperesthesia, to eliminate the girdle pains, and to remove many of the symptoms of the disease, even including some cases of ataxia. If, during this treatment, the most efficient form of which is the intraspinal salvarsanized serum, the serology shows progressive improvement, including a

negative Wassermann, a favorable prognosis seems justified. If, on the contrary, the Wassermann continues positive, or becomes even more strongly so, possibility of a tabo-paresis should be considered with a resultant unfavorable future.

CONCLUSIONS.

In concluding this paper certain things may be briefly summarized as follows:—

Lumbar puncture is a relatively simple and safe procedure when properly performed. Examination of the fluid removed should include chemical, microscopic and serological tests. By examination of the fluid it is possible usually to recognize with certainty and to differentiate the various forms of infectious meningitis. Repeated lumbar puncture is not infrequently of definite therapeutic value in such cases. The cerebrospinal fluid should be carefully studied prior to discharging as cured any case of syphilis, irrespective of the stage in which it has been treated. Examination of the fluid is an essential in properly following the treatment of cases of syphilitic involvement of the nervous system.

Clinical Department.

RESULTS OF THE TREATMENT OF PYORRHEA ALVEOLARIS AND ALLIED CONDITIONS WITH EMETINE HYDROCHLORIDE AT THE DANVERS STATE HOSPITAL—PRELIMINARY REPORT.*

BY H. L. GOSLINE M.D.,

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THIS report is the enlumination of treatment first started at the Danvers State Hospital in November, 1914, and pursued perhaps more systematically during February and March, 1915. There were 42 cases, grouped for convenience of description under the headings: spongy gums, 14; very spongy gums, 12; spongy gums and loose teeth, 16.

The treatment was the so-called full treatment and the local treatment. The full treatment consisted in the administration of emetine hydrochloride gr. 1-6 twice a day subcutaneously, and the application of the wine of ipecac to the gums twice a day for one week, followed by a second week's treatment in which the gums were swabbed with wine of ipecac and an injection of emetine hydrochloride in 1-3 gr. dose was administered once a day.

* Danvers State Hospital Contribution, No. 55. Read at the meeting of the New England Society of Psychiatry at Northampton State Hospital, March 30, 1915.

The results were grouped as showing marked improvement, moderate improvement, or slight improvement. The 14 cases with spongy gums were all treated locally. Eleven showed marked improvement, two moderate improvement, one slight improvement. (The last had great masses of tartar about the teeth, making thorough application impossible.)

Of the 12 cases with very spongy gums, eight were given full treatment, and four local treatment. Seven showed marked improvement, two moderate improvement, three slight improvement. Of the four cases with very spongy gums treated locally, two showed moderate improvement, and two showed slight improvement. Only one of the eight cases receiving full treatment failed to show well marked improvement. No obvious reason for this was discovered.

Sixteen cases with spongy gums and loose teeth, regarded clinically as true Riggs' disease, or pyorrhea alveolaris, were treated; 14 by the "full" method, two locally. Twelve showed marked improvement, four moderate improvement. Of the two treated locally in this group, one showed moderate improvement and one marked improvement. (The case which showed marked improvement had gums which were only slightly swollen to start with, and it is possible that here loose teeth were due to some other cause.) Three cases which received full treatment and showed only moderate improvement had especially marked sponginess of the gums plus loose teeth, the gums bleeding easily, and it being possible in one case to express pus from a small sinus over the root of the right upper canine.

I have used the terms "marked improvement," etc., because I wished to reserve the term "cure" for those cases in which the ameba had been demonstrated before treatment, had disappeared during treatment, and beside which "controls" had been run. Cure should express something more scientifically exact than was possible in this series.

By marked improvement I have designated those cases in which a return to the apparently normal hue and resiliency of the gums was evident. Moderate improvement has meant that there is still left some sponginess, or possibly a slight redness or readiness to bleed, but that improvement is apparent. Slight improvement is more of an impressionistic term and means that there has been little, if any, improvement.

Our results in a certain sense show controls in that, of the 12 cases of very spongy gums, those treated locally showed only moderate or slight improvement, while those treated with emetine in addition to the local treatment showed 87.5% (7/8) marked improvement. The group with loose teeth and spongy gums showed 78.6% (11/14) marked improvement, but in no case with loose teeth did the teeth become firmly set once more.

We are now engaged in examining the teeth of a large number of cases that appear clinically

as pyorrhea. In several cases the ameba has been demonstrated already. It is our aim to demonstrate the ameba or some of the other organisms claimed to be the cause of pyorrhea, and with this material at hand we may later be able to use the word "cure" in the scientifically exact sense.

Medical Progress.

REPORT OF PROGRESS IN PEDIATRICS.

A RÉSUMÉ OF THE RECENT LITERATURE OF DISEASES OF THE GENITO-URINARY TRACT IN CHILDREN.

BY RICHARD M. SMITH, M.D., BOSTON,

AND

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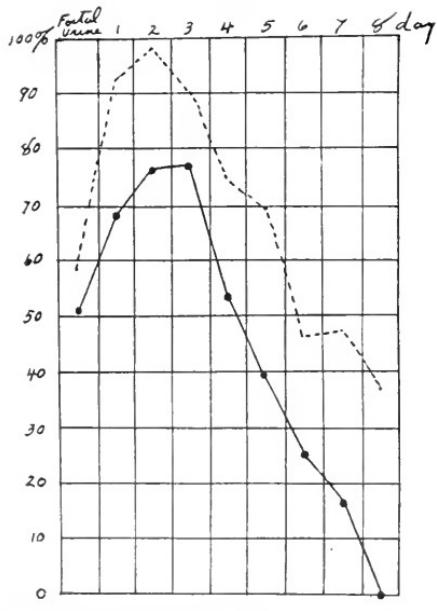
URINE IN INFANCY.

ENGEL¹ contrived an ingenious apparatus to determine the frequency of micturition in infancy and the amount voided at one time. It consists of a small vessel of 10 c.c. capacity in which are two platinum electrodes. As soon as the infant voids, the urine completes the electric circuit and rings a bell which summons the nurse. Any excess of urine overflows into a larger vessel below. He found that the average infant receiving about 800 c.c. of fluid a day voided 20 to 30 times a day, 10 to 20 c.c. at a time, and passed about 500 c.c. in twenty-four hours. The frequency of micturition diminished when the infant was asleep and increased when it was awake and restless. When the fluid intake is increased up to 1600 c.c. a day, the infant voids 60 to 70 times in twenty-four hours. The maximum amount passed at any one time during the first year is 60 c.c.

It is generally recognized that albuminuria in the newborn is of common occurrence. Heller² has been able to detect it at least once in each one of 31 normal infants. Franz and von Reuss³ also found it very common. In addition to the ordinary albumin there occurs a second substance known as the "acetic acid body," which causes a slight cloud on the addition of acetic acid to the urine in the cold. The most probable explanation for this is that the acetic acid sets free from their salts certain albumin precipitating substances (chondroitin-sulphuric acid, nucleic acid, bile acids, etc.), which then form insoluble compounds with the serum albumin already present in the urine. These albumin precipitating substances are apparently present in increased amounts during the first few days of life as well as in orthostatic albuminuria in older children. Thus this cloud on the addition of acetic acid is not only a measure

of the serum-albumin present, but also of the albumin precipitating substance. If there is an excess of the latter the addition of an albumin solution to the filtrate will bring down a further precipitate. Franz and von Reuss³ conclude that "the low grade albuminuria, as well as the excretion of albumin precipitating substances, discovered almost without exception, both of which the newborn show especially during the first three days, is a result of the act of labor; that is, of the change in the circulation which takes place in all cases during delivery. We have to do with a wholly physiological symptom which, to be sure, may be influenced by many accidental factors of physiological and pathological nature."

The frequency of albuminuria during the first few days of life is shown by the following table from Franz and von Reuss³:



— albumin per cent. of cases.
— = albumin precipitating substance.
(Clouding of urine on addition of acetic acid + clouding of the filtrate of the acetic acid precipitate on addition of an albumin solution.)

They also tested for sugar in the urine of many of the infants, having in mind Hoeniger's statement that a true glycosuria occurs after forceps deliveries. In none did they find a surely positive reaction with Nylander's reagent, and the urine of the spontaneously born children was always sugar-free.

Differences in the urine of breast and of bottle fed infants have been studied by Ostrowski.⁴ Fifteen or 20 drops of a 2% silver nitrate solution are added to 5 e.e. of the urine. A white precipitate forms which, if the urine is from a breast fed infant, turns black after standing ten

minutes, or immediately on boiling. If the infant has been fed on the bottle the precipitate remains white. The cause of the reaction is still undetermined. It is probably the small amount of chloride in breast milk and consequently in the urine of the breast fed baby, which causes the silver nitrate to be present in excess. This excess is then acted upon by reducing substances in the urine and changed to metallic silver. Whatever the test depends on, it is apparently fairly reliable as Ostrowski obtained the following figures: 156 breast-fed babies, positive in 96.2%, negative in 3.8%; 30 bottle-fed babies, positive in 3.3%, negative in 96.7%; 78 babies fed on both breast and bottle, positive in 56.4%, negative in 43.6%.

ALIMENTARY ALBUMINURIA.

Hayashi⁵ has tested the nature of the albumin in the urine of 29 sick children and one sick infant, using the precipitin reaction with serums that had been sensitized to the proteins of beef, milk, egg white, and egg yolk. He found a positive reaction with the anti-milk serum in 5 cases, with the anti-egg white serum in 1 case, and with the anti-egg yolk serum in 3 cases; a total of 9 cases. These children, however, were all sick, although with different diseases, except that 2 of the 9 positive cases had pyelitis. Hayashi agrees with Hecker that "acute infections predispose to alimentary albuminuria," and concludes that "not infrequently in cases of albuminuria there can appear in the urine unchanged albumin from the food ingested."

ORTHOSTATIC ALBUMINURIA.

Nicholson⁶ has made an excellent study of orthostatic albuminuria as it occurred among 189 healthy English school boys. He reports that 7.5% showed albumin on arising, 7% after breakfast, 10.7% after football, and 18% after a three-mile run. "Each test seems to have picked out a fresh set of subjects who were influenced by the conditions of the test." Adding all together, 28% showed albumin at one time or another. Bugge,⁷ however, found orthostatic albuminuria in 14.9% of 1076 school children in Christiania. It was much commoner among the girls than among the boys, the figures being 13.3% and 3.5% respectively. Nicholson⁶ was unable to discover any relation to the diet, to bathing, or to the height of the blood pressure. The administration of digitalis apparently increased the amount of albumin. The influence of position and of the muscular exertion of maintaining the body in equilibrium, he determined in an ingenious way. The boy was fastened flat in bed and then the head of the bed was very gradually raised, until after 1½ hours the boy had reached the vertical position. He was then released and allowed to sit quietly about the room. This was tried on two different boys. He found that "the mechanical raising of the body to the

vertical had a slight definite result; as it is quite certain that the albumin would not have appeared if the boys had stayed in bed in the ordinary way, we have a convincing proof that the mechanical raising of the body had a share in the albumin production." "In each case (after the boys were out of bed) the gentle movement necessitated by the maintenance of equilibrium, produced a large increase; after this the influence of the nervous system controlling equilibrium cannot be doubted."

Dietl⁸ believes that lordosis can cause sufficient stagnation in the renal vessels to induce albuminuria especially with the assistance of an unstable vasomotor system. Bass and Wessler⁹ have made a careful study of this theory and taken many blood pressure readings on children with orthostatic albuminuria. Unfortunately, "in spite of the apparent vasomotor insufficiency which many of these children showed, the blood pressure reactions both in the upright and recumbent positions and also after exercise, revealed no characteristic anomaly. Children with orthostatic albuminuria who showed marked cardiovascular symptoms could not be differentiated by means of blood pressure tests from the remainder of the group." They do not consider, however, that their findings have necessarily ruled out the hypothesis "that only those children react to lordosis by an excretion of albumin in whom an abnormal vasomotor system is unable to prevent congestion of the kidney," since their experiments were all made on the pressure in the brachial artery and the findings in the renal vessels of the same case might conceivably be different.

ORTHOSTATIC ALBUMINURIA AND TUBERCULOSIS.

It is claimed that orthostatic albuminuria is usually, if not always, a sign of tuberculous infection somewhere in the body. Reyher,^{10, 11} investigated 20 cases of orthostatic albuminuria and was in every case able to find tuberculosis. It was necessary to keep the children under observation for some time and to supplement the customary history and physical examination with a temperature record, x-ray plates, and von Pirquet test. Wendenberg¹² holds similar views, although he does not consider it an invariable sign of tuberculosis. Arnold¹³ believes that orthostatic albuminuria is merely a sign of a general infection and is by no means pathognomonic of tuberculosis. He found no orthostatic albuminuria in 44 cases of chronic skin tuberculosis, nor in 8 of psoriasis, while in 33 cases of early and untreated syphilis it was about as common as in the early stages of tuberculosis. Therefore it is not to be regarded as suggestive of incipient tuberculosis unless syphilis can be excluded. Sturm¹⁴ criticizes Arnold's conclusions because the latter was dealing with chronic skin tuberculosis, which is a localized process and can scarcely be expected to give the same results as pulmonary tuberculosis. Although admitting

that orthostatic albuminuria may occur in syphilis and other infectious diseases, he nevertheless asserts that it "is a valuable early sign of tuberculosis." He found it present in 12 out of 20 cases of phthisis.

ENURESIS.

Enuresis may be defined as lack of bladder control after the third year. It is a symptom and not a disease and should lead to an examination for retarded mental development, local malformations, ulcer at the meatus, phimosis, vulvitis, renal or bladder stone, tuberculosis of the bladder, thread worms, or anal fissure.¹⁵ Bogert¹⁶ regards it as a functional nervous disorder dependent upon chronic digestive disturbances. He analyzed the histories of 50 cases and noted "practically without exception gross errors in feeding." Consequently he restricts his treatment to the regulation of the diet and the general hygiene, the only drugs used being laxatives and intestinal antiseptics. He gives no figures but says he has obtained "a fair percentage of cures."

Schwartz,¹⁷ after a study of 246 cases, writes that "a review of the records does not bear out the assertion that chronic digestive disturbances are more frequent in cases of enuresis than in other patients. He also found "no connection between the tonsils and adenoids and the enuresis." "The degree of acidity of the urine bore no relationship to the severity of the incontinence," and although 70.9% of the specimens examined were acid, "the urine frequently varied in reaction on different visits" without any change in the symptoms. "Neither do the hemoglobin estimations point to anemia as an associated symptom." He found the following abnormalities of the genitalia: redundant prepuce, preputial adhesions, phimosis, hypertrophied clitoris; and the following under the head of the central nervous system: nervous, tie, chorea, imbecile, retarded mentality, indistinct speech, somnambulist, pavor nocturnus. He has nothing new to add to the treatment. In no instance did the customary hygienic and dietary measures effect a cure. The administration of atropine or thyroid was useless and alkalies seemed of doubtful value.

Simpson,¹⁸ on the other hand, in addition to regulating the general hygiene, uses drugs according to one of the following four methods:

1. Urine normal. Tincture of belladonna, gr. x-xxv t.i.d.
2. Urine acid, full of urates, and of high specific gravity. Potassium citrate, gr. x, t.i.d., or enough to reduce the acidity, and then tincture of belladonna.
3. Urine alkaline, of low specific gravity and increased amount. All carbohydrate food must be prohibited. "If the urine is very alkaline acid sodium phosphate may be given; when the alkalinity has been reduced belladonna should be used. . . ."

4. Baeilluria, usually *B. coli*. Urotropin gr. v-x, t.i.d., often combined with potassium citrate.

If the treatment with belladonna fails he considers that ergot should be tried and also thyroid if the child is backward mentally.

Calier¹⁸ has developed a method of treatment which he used first among the recruits in the French army where it met with such success that some of his colleagues adopted it. He quotes Gaulejae as having obtained 50% of cures in treating 150 children with enuresis according to his method. He injects 40 to 60 c.c. of normal saline into the subcutaneous tissue of the perineum on each side of the median raphe. A single treatment is usually sufficient. The injection is made forcibly so that considerable distention results, "the aim being to act on the nerve terminals of the region by pressure." In some way this stimulus reinforces the sensation of a distended bladder, so that the patient is waked out of a sound sleep by the desire to urinate.

NEPHRITIS.

Heubner¹⁹ found only 73 children with chronic kidney disease in a series of 17,000 cases. He makes no attempt to use the customary adult classification, but groups them as follows:—

1. Chronic hemorrhagic nephrosis—the commonest, consisting of almost $\frac{1}{2}$ the cases. It is characterized by edema and by bloody urine with albuminuria and casts. The duration is for years, with a tendency to grow worse.

2. Very similar to the first group, but without the hemorrhage. The course is more rapid, and death usually ensues after several months.

3. There was 1 case of a true contracted kidney.

4. There were 6 cases of pyelitis.

5. A group of mild nephroses following the acute infections. Frequently there are no symptoms, although the urine contains albumin and casts. It is serious only if after a second infection it passes over into one of the other types.

6. Practically a still milder form of the preceding group, ending in recovery.

Castro²⁰ adds to this classification a type which he labels erythrocyturia minima. It consists of the unexplained appearance of small numbers of red blood cells and leucocytes in the sediment of otherwise normal urine during an attack of one of the milder infections, or after vaccination, or the injection of tuberculin. He considers "that in addition to the factor of infection a constitutional predisposition must be hypothesized similar to that which is agreed on for orthostatic albuminuria."

Frank²¹ has studied the autopsy protocols of 452 infants, finding only 4.86% of acute nephritis. These were classed as follows:—

1. Exudative Type, predominantly hemorrhagic, purulent, with leucocytic infiltration and of lymphocytic character, 16 cases.

2. Interstitial Type, 4 cases.
3. Mixed Type, 2 cases.

The comparative frequency of the hemorrhagic type is of interest here. He considers it "due to the abnormally great permeability of the blood vessels in the first year of life."

Stavsky²² has reported 2 cases of Heubner's paedonephritis levis in which "no treatment or lack of treatment has modified conditions in the least." He urges that the children instead of being kept in bed should be allowed to lead a normal life, except that food which is liable to irritate the kidneys should be excluded from the diet.

Noeggerath and Zondek²³ have applied the modern tests of renal function to 6 children with nephritis and to several healthy controls. All the children were first put on a standard diet, which for a boy of 10, weighing 28.8K, consisted of 500 c.c. milk, 50 c.c. sugar, 50 gm. unsalted bread, 10 gm. unsalted butter, 100 gm. potatoes, 80 gm. carrots, 80 gm. apples, 250 c.c. tea, 100 c.c. coffee, 400 c.c. water, 15 c.c. lemon juice. This totals 1436 calories, 26.04 gm. albumin, 1.121 gm. salt, and 1061 c.c. water.

"The tests were made by superimposing on this standard ration varying amounts of salts, from 1 to 5 gm. a day, and varying amounts of a commercial food representing 67.4% albumin, 0.2% salt, and no extractives." The authors concluded "that the albumin content and the sediment of the urine are far from reliable criteria as to the functional capacity of a child's kidney. They may be apparently normal while the child is unable to tolerate the salt and albumin of the normal diet for his age. It sometimes happens that the tolerance for salt becomes upset when albumin beyond what he can tolerate is being taken, or vice versa."

In the treatment of the severe type of acute nephritis in children they made use of a diet exclusively of sugar, and later of drawn breast milk mixed with oatmeal gruel.

Reinike²⁴ reports that, by the use of polarized light lipid substances can sometimes be detected in the urine sediment. Their occurrence is an "indication of the destruction of epithelial kidney tissue." He found lipoids in 8 out of 100 cases, in 4 of these only one drop on a single occasion. Of the other 4 cases, 2 were without doubt a chronic degenerative nephrosis, and in the other 2 "it was the discovery of the lipoids which suggested the severity of the disease before the clinical course allowed an exact opinion." He never found lipoids in healthy children, or in acute nephritis or orthostatic albuminuria.

STONE.

Ollerenshaw²⁵ has reported 2 cases of renal calculus in children, one in a girl of three years, the other in a boy of eight years. In both the symptoms had begun at least a year before operation, although the kidneys had not yet become infected. The stones were single, as was shown

by x-ray, and were easily removed at operation. In neither case was there any recurrence. He believes that renal stones are probably commoner in children than has been suspected, and that they should be looked for most carefully in every case of hematuria or gravel or enuresis.

Collins,²⁶ on the basis of a review of the literature, concludes that "calculi discovered in older children or in adult life frequently originate in infancy or childhood." Apparently most cases in early life are found accidentally at autopsy, and "there is a paucity of case reports of renal stone in infants discovered and treated surgically." He adds one case to those already reported, that of a sixteen months' old boy with a stone impacted at the tip of the urethra. In addition he was able to demonstrate stones in both kidneys, but was not allowed to operate. He found that "diseases of an infectious nature occur in association with calculus and hydronephrosis in 65% or 107 cases" and that "diseases of the respiratory tract are associated with urinary stone or hydronephrosis most often." The treatment is clearly surgical as soon as the diagnosis is made.

UTERINE HEMORRHAGE OF THE NEWBORN.

This condition is not to be confused with precocious menstruation or with hemorrhagic disease of the newborn. It usually appears about the fifth to the seventh day after birth, too early for precocious menstruation, and never recurs. There is no bleeding from other parts of the body. The total amount of blood lost is very slight. In none of the reported cases have there been any of the secondary signs of sexual activity, such as engorgement of the breasts, growth of axillary or pubic hair, etc.

The condition is not a common one, the figures which Zacharias²⁷ has obtained from the literature and from his own investigations varying from 0.12% to 2.59% of female births. The bleeding appears on the fifth to seventh day, occasionally earlier or later, and lasts one to two days. It is not serious, being usually nothing more than a stain on the diaper, and requires no treatment.

The cause is so far uncertain. Juda²⁸ and Zacharias²⁷ both uphold Halban's theory, which is in brief that the internal secretion of the placenta which causes the enlargement and increased blood supply of the maternal uterus, may enter the fetal circulation and thus produce an analogous condition in the uterus of the child. The uteri of newborn infants show on histological examination all degrees of engorgement, even up to the point of hemorrhage into the uterine cavity. Zaeharias adds, however, that in all his cases the infants were above the average weight and suggests that the additional compression to which they were subjected during delivery may have produced an increased liability to genital hemorrhage.

PYELITIS.

Thomson²⁹ discusses the mode of infection in an excellent paper based on 71 cases of colon infection of the urinary tract in his private practice. He believes that the bacilli may reach the kidneys by the blood stream, the lymphatics, or the urethra and ureters. "If the virulence of the organisms has been increased by morbid processes in the intestine or otherwise, or the normal resistance of the tissues lowered by local or general disease; or perhaps if there has been some retardation of the flow of urine, then more or less violent inflammation may be set up." In analyzing his cases he found that 79% were girls; that diarrhea at onset was commoner in infants than in children, and in boys than in girls; that under six months of age more boys than girls were affected; that rigors at onset are rare in boys and comparatively common in girls; and that the course of the disease is more severe in boys and more apt to terminate in a fatal pyelonephritis. He decided that "the great preponderance of female patients forces us to the conclusion that ascending infection by way of the urethra must be a common occurrence; and the excess of girls over boys probably represents the frequency with which urethral infection takes place. It seems very unlikely that colon bacilli can force their way up the lumen of the male urethra. The greater prevalence of antecedent diarrhea in boys would probably cease to exist if we were able to subtract from the list of girls the primary cases infected per urethram. The frequency of pyelonephritis in the male sex may be explained by the infection having usually in them passed straight from the bowel to the kidney and pelvis and not having ascended from below. The facts that rigors are so very rare in acute pyelitis in boys and in pyelonephritis in both sexes, while they are so common in acute pyelitis in girls (in whom we suspect an ascending infection) suggest the idea that the ureters may be the particular portion of the urinary tract from irritation of which a rigor most readily arises. The frequency with which rigors are met with in ureteral calculus may be held to support this view."

Somewhat similar views are held by Wyman,³⁰ who, from a study of 65 cases at the Children's Hospital in Boston, concludes that the ascending route is the common one in girls and the hematogenous in boys, while the transparietal is rare in both sexes.

Cannata and Caronia³¹ emphasize the necessity of preventing the early infections. They regard habitual constipation as dangerous because there is usually elimination of bacteria by way of the urinary apparatus. They, as well as Stiner,³² mention chilling as a common exciting cause.

Langstein³³ has reported a fatal case of pyelitis in which the infecting organism was Friedländer's bacillus.

Kowitz³⁴ reports a series of 40 cases consisting

of 17 males and 23 females. There was a marked seasonal variation, the disease being most common in September. He believes that pyelitis is a hematogenous infection following the digestive disturbances of the summer.

Freeman³⁵ endeavors to draw a line between a normal and a pathological number of pus cells in the urine. According to him "1-2 leucocytes in a D field (Zeiss) of precipitate (of centrifuged urine) from a female baby does not indicate pyelitis. That number in a male baby, or more in a female baby, should render the diagnosis suspicious." F. H. Smith³⁶ finds that as few as 3 pus cells to the 1/6 field in either sex may cause the most severe symptoms.

A hemorrhagic type of pyelitis has been described by Langstein.³³ The sediment consists of "many red blood corpuscles, only scattered leucocytes, and perhaps here and there a cast. At the time it is difficult to decide whether this is the picture of a hemorrhagic nephritis, a calculus, or a beginning pyelitis."

The disease may last untreated for several years, showing either no symptoms or occasional exacerbations.^{29, 35, 37, 38, 39} With correct treatment at least 90% of the patients recover. The condition may lead to a contracted kidney or to a nephrosis.³³ Before pronouncing the patient cured the urine should not only show an absence of organisms and of pus cells, but should also be culturally free.³⁸

Little new has been written about treatment. Alkalies are advocated by Thomson²⁹ and Marsh.³⁸ Wyman³⁹ favors changing the reaction of the urine back and forth by the alternate administration of potassium citrate and sodium benzoate. Freeman³⁷ admits that alkalies will control some cases, but considers them markedly less efficient than other methods of treatment. Langstein³³ regards the alkaline treatment as useless.

There is similar disagreement about the value of the "urinary antiseptics." The upholders of hexamethylenamine are Freeman,^{35, 37} Wyman³⁰ (as second choice), and Cannata.³¹ Langstein³³ prefers salol. Marsh,³⁸ Thomson,²⁹ and Kowitz³⁴ are skeptical as to the value of any urinary antiseptic.

Freeman³⁵ reports that vaccines will relieve symptoms but not cure the pyelitis. "The child loses its fever and will increase in weight and seem perfectly well, but when the urine is examined one finds the same pus and bacteria as before." The other authors are either skeptical as to the value of vaccines,^{30, 34, 38, 40} or consider them useless.^{29, 33, 39}

VAGINITIS.

There have been a number of investigations,^{41, 42, 43, 44, 45} into the sources of infection in vaginitis, the general tendency of which, notwithstanding the great importance of hospital and institutional epidemics, is to place the ultimate responsibility further back, in the home,

the school, and the street or play-ground. In from 30 to 50% of the cases the infection has come from other members of the family, while hospital infection is given as only 3 to 30%. The remaining cases seem to acquire the disease from their playmates, either through indulgence in bad habits or innocently from infected toilets.

Prophylaxis is as much a social as a medical problem, but no board of health has as yet dared to undertake it. Goldwater⁴⁶ of New York has written an interesting report from the health officer's view point in which he offers no solution. Other authors,^{41, 43} have suggested various extreme and untried measures. All^{41, 42, 43, 44, 45, 47} agree in keeping the children out of school for a few weeks and in warning teachers and school nurses when they go back that they are not to use the common toilet.

The diagnosis in doubtful cases is greatly helped by the use of a urethroscope through which smears may be obtained from the vaginal vault and cervix.^{43, 45}

The most important part of the treatment is to keep the child in bed for the first few weeks and to use every means to improve her general condition. Opinions vary greatly as to the efficacy of local treatment. Kerley⁴⁸ and Hamilton⁴⁹ merely keep the patient clean and dry. Others^{42, 44, 47} follow a cleansing douche by the instillation of some silver preparation. Barnett⁴³ uses a permanganate douche and follows it three times a week by an endoscopic treatment of the cervix and vagina with Lugol's solution. Rubin and Leopold⁵⁰ consider the use of the electric lighted female urethroscope essential in treating the disease.

The advisability of using vaccines is still disputed. Hamilton⁴⁹ is "still enthusiastic in the treatment of recent cases by vaccines." Comby and Condat⁵¹ also speak favorably. Spaulding⁴⁴ has tried them out in 35 cases in addition to the local treatment and feels that they are possibly "an additional factor for good." Barnett,⁴³ Hamburger⁵² and Heyman and Moos,⁵³ however, consider vaccines useless.

Proof of the cure of the disease is difficult to obtain. Spaulding⁴⁴ believes that the disease may be latent for "as long as 18 months" and "that the most efficient treatment does not insure a permanent cure." Mattison⁵⁴ reports similar findings. G. G. Smith⁴⁷ has used the complement fixation test and finds it of considerable value for the purpose of establishing a cure. He writes that "if after three or more months, during which frequent smears from the depths of the vagina have contained no pus, and all other signs of the infection have disappeared, a discharge containing gonococci recurs, we believe that this attack is frequently a reinfection, very possibly from the same source as the first."

GONOCOCCUS INFECTION IN BOYS.

Two interesting cases of gonococcus infection in boys have been reported, one of urethritis in

a boy of 17 months,⁵⁵ and the other of arthritis in a boy of two and one-half years.⁵⁶ In the latter case gonococci were obtained in pure culture from the purulent joints and also from the urethra, which, however, showed no signs of disease even on careful examination.

TUBERCULOSIS.

Renal tuberculosis in children is a very rare disease. Oraison⁵⁷ reports three cases, all in girls, bringing the total number of reported cases up to 51. One of his patients had a severe Potts disease, was not operated on, and died; the other two had nephrectomies; one apparently recovered and the other was lost sight of. Roehler and Ferron⁵⁸ report a case, also in a girl, in which the offending kidney was removed with resultant cure.

Primary genital tuberculosis is also rare. Lyons⁵⁹ reports three cases in small boys. In two of these the infection was in the epididymis and the patients appeared to be in perfect health. In the third the prostate and seminal vesicles were found infected and the boy presented a typical tuberculous appearance. Lyons concludes that in these cases tuberculosis of these organs is usually the only focus in the body and that therefore operation may produce a permanent cure.

Graefe⁶⁰ in an analysis of necropsy protocols, found 19 cases of genital tuberculosis in girls under 15 years. The lesions of the genitalia were invariably secondary to tuberculosis elsewhere. The tubes were the favorite site of infection.

Holt⁶¹ has reported a case of miliary tuberculosis following a ritual circumcision. He gives an abstract of the 40 cases already reported and says that of the 41 patients, 16 are known to have died, 7 are tuberculous, in 12 the final results are not known and only six are stated to have recovered.

Champtaloup⁶² reports a similar case from New Zealand, except that the operator was a physician who has since died of laryngeal tuberculosis. This patient was treated with tuberculin and when seen eight months later was the picture of health.

RHEUMATIC ORCHITIS.

Bass⁶³ describes a boy two and one-half years old who developed erythema nodosum and torticollis, and four days later, while under treatment with salicylates, a sudden swelling of the scrotum. The scrotum was hot, edematous and dusky in color, and the left testicle was enlarged and exquisitely tender while the right was normal. The condition quickly subsided and a month later there was "no atrophy of the testis."

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Reports of Societies.

THE BOSTON SURGICAL SOCIETY.

STATED MEETING (CLINICAL) HELD ON MONDAY, APRIL 5, 1915, AT THE MASSACHUSETTS GENERAL HOSPITAL.

GASTRIC CANCER.

DR. C. A. PORTER did a partial gastrectomy for gastric cancer.

CANCER OF CERVIX: OPERATION: PALLIATIVE LIGATION OF THE INTERNAL ILIAC ARTERIES AND CAUTERIZATION OF THE CERVIX.

DR. FARRAR COBB presented and operated upon this case.

McG., forty-six, white, widow. Symptoms: For two years irregular catamenia, occasionally profuse hemorrhage. For five months weakness and continuous foul vaginal discharge with constant pain low in the pelvis, dull, not severe.

Examination showed vagina filled with fungating, cauliflower-like ulcerated mass. Induration in both broad ligaments.

Operation April 5th. Median suprapubic incision. Disease well into the broad ligaments. Right internal iliac artery ligated with silk. On the left side dense adhesions between an old pus tube and the sigmoid flexure made ligation of the artery too dangerous. The abdominal wound closed without drainage. Patient placed in lithotomy position and cervix thoroughly cauterized.

(This patient made an uneventful convalescence, and had no further pain while in the hospital. No hemorrhage. Discharged from the hospital on April 19th.)

A CASE OF DUODENAL ULCER AND CHRONIC APPENDICITIS.

DR. CHARLES L. SCUDDER presented and operated upon a case with the above diagnosis and the appended history:

Two weeks ago the patient, a married woman of 25 years of age, entered the hospital complaining of stomach trouble. Her family history was negative. Her past history showed repeated attacks of tonsillitis. She had been troubled with constipation for four years.

For three years she had had attacks of epigastric pain from four to five times a day, lasting about twenty minutes each time. The pain was gnawing and burning in character and was relieved by lying down and by soda. The pain was severe enough to double her up. During the present attack she has vomited all solid food. About half an hour after meals she becomes nauseated and vomits. Three weeks ago she vomited a small amount of blood. The pain was inconstant during the first two years but has become pretty constant the past year. She has lost 50 pounds in weight in three years.

Physical examination was negative excepting for slight tenderness in the epigastrium. Peristalsis was visible.

Two x-ray examinations were made. The first showed adhesions obstructing the duodenum. The second was interpreted as probable duodenal ulcer and possibly adhesions. There was a question of stones in the gall-bladder.

The Wassermann examination of the blood was negative. The urine was negative. The blood tests of the stool were repeatedly negative. The hemoglobin was 80%.

The tube examination showed a fasting content of 60 c.c. of green, cloudy fluid. There was free HCl and the test for blood was positive. The test meal showed 105 c.c. of cloudy white material. Free HCl was .18% and the total acidity was .26%.

The history and the x-ray in this case are suggestive of duodenal ulcer, and the x-ray is also somewhat suggestive of gall-stones.

Exploration showed an induration just below the pyloric ring in the first portion of the duodenum posteriorly. No stippling was seen. There was no other pathology, both the stomach and gall-bladder appearing normal. The pyloric region of the ulcer was infolded and a posterior gastroenterostomy was done. Under a separate incision the appendix was found covered with a veil, thinned out and bound down by adhesions. An appendectomy was done.

Two weeks following the operation the patient was discharged from the hospital looking and feeling well. She had a good convalescence, with no complaints of any kind.

REMARKS.

I believe that given findings such as in the case before us, an uncomplicated duodenal ulcer, a posterior gastroenterostomy with infolding of the duodenal region temporarily and partly to obstruct the passage of food is sufficient treatment for the ordinary case of duodenal ulcer. I personally believe that all procedures for causing obstruction including section of the pylorus should be reserved for those cases which require a second operation. Until we are more informed about the cause of ulcer and the real influence which a gastroenterostomy has upon the healing of a duodenal ulcer, this seems to me the wisest attitude to take in the treatment of these cases.

The red stippling sign was absent in this case, probably because the lesion was posterior and was not near enough to the surface to be seen. I believe the red stippling sign is an important sign and at times goes on that it will aid the surgeon in distinguishing cancer from chronic ulcer.

CHOLECYSTECTOMY FOR CHOLELITHIASIS.

DR. LINCOLN DAVIS detailed the history of this case and performed the operation.

RENAL STONES: RENAL CYST: OPERATION.

DR. HUGH CABOT operated on this interesting case. He felt before operation and proved by operation that the shadows shown in the kidney region in the x-ray plate were not stones but calcified glands. The stones which were found at operation were not shown in the plate. In addition to the stones there was a cyst of the lower pole of the kidney as large as an English walnut. Dr. Cabot went into the differential diagnosis of the case very carefully, and he stated that preoperative diagnosis was probable hydronephrosis.

ABDOMINAL PAIN: EXPLORATORY LAPAROTOMY.

DR. HUGH WILLIAMS presented a case in which every effort had been made to establish a diagnosis of the cause of the pain in the upper abdomen. The probable diagnosis was cholelithiasis or cholecystitis. The exploratory operation was negative in its disclosures.

SARCOMA OF THE SCAPULA: INTERSCAPULO-THORACIC AMPUTATION.

DR. FARRAR COBB presented the patient.

M. C., 48, white, married. Symptoms: For two months pain in left shoulder, limitation of motion in the left arm with the appearance of new growth. Shoulder girdle amputation was performed because of the large sarcoma occupying the region of the scapula and point of the shoulder. Previous to the operation the patient had indirect blood transfusion. Patient suffered no shock at the operation. The wound healed by first intention. Operation done March 11, patient discharged from the hospital March 30.

POPLITEAL ANEURYSM: LIGATION OF THE POPLITEAL ARTERY: GANGRENE OF THE FOOT.

DR. CHARLES A. PORTER presented this case. A Matas operation was impossible; hence ligation of the artery was done; a limited gangrene of the foot followed.

SYPHILIS AND CARCINOMA OF THE UPPER JAW.

DR. PORTER then exhibited a patient with a tumor of the upper jaw. An outline of the history was given and Dr. Porter asked for opinions as to the probable diagnosis and as to treatment. He said that a microscopic examination of tissue excised showed both syphilis and cancer.

ACTINOMYCOSIS OF ABDOMINAL WALL.

DR. PORTER showed a man with a slowly healing actinomycosis of the abdominal wall.

INOPERABLE SPINA BIFIDA.

DR. PORTER also presented an infant showing an apparently inoperable spina bifida.

CENTRAL GIANT CELL SARCOMA OF UPPER END OF UHLA.

DR. C. C. SIMMONS presented this case:—

The patient is a colored man forty years old. He has always been in fair health. Denies venereal. Five years ago he was in the Boston City Hospital for five weeks for pleurisy and the chest was tapped once. He has been working ever since.

Twenty-eight months ago he fell, striking on the right elbow. Following this he began to have pain in the elbow, intermittent and not very severe. He first noticed a swelling eighteen months ago, and this has slowly increased, gradually limiting the motions of the joint.

Physical Examination. Negative except as follows: There was evidence of an old process in the base of the right lung, demonstrable by physical signs and x-ray. There was a bony tumor occupying the upper four inches of the right ulna about the size of a large orange. This was hard, with soft areas, circumscribed and not tender. It mechanically limited the motions of the joints. There are no axillary glands. The Wassermann was negative. Blood picture not remarkable.

X-ray showed the upper four inches of the ulna distended to the size of an orange by a tumor. The outer walls were thin bone and the cavity was traversed by many fine bony trabeculae.

Operation. Resection of the upper third of the ulna was accomplished without much difficulty. The triceps tendon was sutured to the fascia of the forearm, and an orbicular ligament was made from fascia to prevent the head of the radius from dislocating forwards.

Convalescence uneventful.

Pathological Report. Giant cell sarcoma.

The giant cell central sarcoma is the least malignant type of bone sarcomata, practically never forming metastases. Some observers recognize two forms, one of which is benign, and the other forming metastases. If recurrence takes place it usually does so locally. Resection is the operation of choice and amputation should be performed only under exceptional circumstances.

At present, ten days after operation, it would appear that the elbow will be a fairly useful joint. It may be possible, however, at a later date to do a bone graft to fill in the defect caused by the removal of the ulna.

DUODENAL ULCER: PERFORATION: TREATMENT OF DUODENAL FISTULA.

DR. DANIEL F. JONES reported a case of perforated duodenal ulcer.

The patient, a man of 65, developed a duodenal fistula, after drainage of an abscess in the region of the head of the pancreas. In poor condition, and septic, before the fistula developed, he rapidly ran down hill, as all food taken by mouth came out the fistula. The walls of the wound, and the skin, were rapidly digested. At the end of ten days, the patient was almost moribund, with no pulse whatever, that could be felt at the wrist.

A Witzel jejunostomy was done under local anesthesia, in order to nourish the patient, and give him fluid. An hydraulic siphon was then connected up with a catheter, which lay in the wound. A bottle was interposed, between the wound and the siphon, to collect the digestive fluids. All dressings were removed, and the skin covered with zinc oxide ointment.

The patient remained almost pulseless for twenty-four hours, then gradually improved.

The wound leading to the duodenal fistula was kept absolutely dry, by the siphon, and as fast as the digestive fluids were collected in the bottle they were put into the jejunum, through the jejunostomy.

Within one week the fistula, which was a very large opening into the bowel, was closed, and the patient's condition was much improved. Five days later an attempt was made to feed the patient by mouth, but the symptoms of duodenal ulcer were so severe, including vomiting of coffee ground material, the feeding by mouth was stopped for two weeks, and the feeding by jejunum continued. At the end of this time, the patient took his nourishment without discomfort, or other symptoms, and has now entirely recovered.

Attention is called to jejunostomy in this condition, as being more sure and more satisfactory than a gastro-enterostomy, which is frequently done in cases of injury to the duodenum. The siphon, as used in this wound, will prove of the greatest value. I am sure, in many fistulae, such as those which occasionally follow perforated ulcers, biliary fistulae, all small intestine fistulae, and even suprapubic cystostomies.

DR. HUGH WILLIAMS spoke of a similar case and a similar use of the siphon. He exhibited an electric double-suction pump designed by his chauffeur for the purpose.

DOUBLE EXOPHTHALMOS WITH OPTIC NEURITIS, A SMALL GOITRE AND SLIGHT SIGNS OF HYPERTHYROIDISM.

DR. LINCOLN DAVIS presented and discussed this case. The diagnosis lies between Graves' disease and a possible new growth in the sphenoidal region.

DR. GEORGE S. DERBY saw the case in consultation and reported that the patient, a female, 54 years old, noticed in October, 1914, some protrusion of her left eye. This gradually increased, and a fold of conjunctiva below the eyeball became edematous and projected forward between the closed lids.

Four weeks ago, the protrusion of the left eye appeared to subside, and the right eye then began to protrude a little, accompanied with swelling of the fold of conjunctiva.

The proptosis is now considerable, and about equal on both sides. Limitation of motion of the eyeballs downward and to the left; slight limitation upward.

Right eye now tends to diverge. Right cornea slightly hazy and epithelium wrinkled. Right optic nerve head shows some neuritis.

Left cornea and media normal. Very marked optic neuritis, with swelling of the disc and congestion of the veins. Several hemorrhages.

Pupils equal and react.

Vision right, 20/100.

Vision left, 20/70.

Patient has a palpable thyroid, slight tremor of the hands, and the pulse-rate has at times reached 160. At present it runs between 80 and 90. Blood pressure, 200. Wassermann negative.

Neurological examination, with reference to intracranial pressure, negative.

Numerous nasal examinations negative.

Various possible diagnoses: a new growth far back in the nose, exophthalmic goitre, disease of the posterior ethmoid cells or sphenoid sinuses. Thus far, it has not been possible to make a diagnosis.

Optic neuritis is extremely rare in Graves' disease.

Fields of vision have been taken, but throw no light on the condition.

Case is brought before you in hope of receiving suggestions as to diagnosis and treatment.

SEPARATION OF THE LOWER EPIPHYSIS OF THE FEMUR WITH DISLOCATION.

DR. C. L. SCUDER presented a boy, 9 years old, who, while stealing a ride, caught his foot in the spokes of a revolving wheel, sustaining an injury to the left leg, for which he was immediately brought to the accident room of the hospital.

Examination found a well developed and nourished boy in great pain. All findings were negative excepting for the left leg, which was displaced inward with inward rotation of the foot. There was considerable shortening and great tenderness. The lower end of the femur could be felt just beneath the skin at the outer side of the leg just above the knee. All motions of the leg caused extreme pain. The leg was held in median flexion. No extension was possible because of the great pain. There was no ecchymosis or break of the skin, and the swelling about the knee was considerable. The leg was placed in pillow and side splints.

The X-ray which was taken at entrance showed a separation of the lower epiphysis of the left femur with dislocation of the epiphysis forward under the patella.

Three days after the accident I operated upon this patient. Two lateral incisions were made 5 inches long. The displaced epiphysis was exposed through these incisions. Two strong Lambotte hooks were placed on the edge of the displaced epiphysis and by traction upon these hooks, by traction upon the leg, and by pressure over the lower end of the femur posteriorly, the separated epiphysis was replaced in its normal position. The two lateral incisions were closed by suture and the leg flexed firmly upon the thigh and held in this position by means of a plaster bandage.

The x-ray subsequently demonstrated that the epiphysis had been replaced. A report six weeks later finds that the boy is moving his knee through an arc of about 20 degrees, is having gentle traction made upon the leg, massage to the knee and active movements. He is gradually gaining the full use of the knee.

REMARKS.

It has been suggested by Binney and others that in certain cases of separation of the lower epiphysis of the femur it may be necessary to insert a steel pin through the epiphysis into the shaft in order to prevent a slipping of the epiphysis after reduction. In this case there was no tendency to slipping of the fragments upon the shaft, while the acutely flexed position of the knee was maintained. The only advantage that a pin might have been to this boy is that had it been used he might have been allowed earlier freedom in the movement of the leg, and so he would have gotten about a little bit sooner.

OPERATIVE PROCEDURES UPON THE KNEE-JOINT.

DR. E. G. BRACKETT showed a series of cases illustrating the ease and success with which the cavity of the knee-joint can be explored or operated upon through a median incision of the patella. Both tendons should be exposed freely so that they may be well seen and that an exact median incision may be made in the patella. The upper end of the skin incision should slant slightly outward; the bone should be cut through cleanly, but the tendons should be only nicked. Do not displace very much the fascia and tendon on the patella.

The greatest possible care in asepsis should be exercised. The closure is entirely by silk. The joint is completely immobilized for not more than three days. Passive motion is instituted after the first week or ten days. Weight-bearing is allowed in from four to six weeks.

Book Reviews.

Essentials of Medical Electricity. BY GEORGE KNAPP ABBOTT, A.B., M.D. Illustrated. Philadelphia and London: W. B. Saunders Company. 1915.

This manual for medical students and nurses aims to present the principles of electrotherapy in suitable form for elementary instruction and yet with sufficient scientific completeness to cover the fundamental facts of its clinical application. The subjects of galvanic, faradic, sinusoidal and static electricity are successively considered with chapters on electrolysis, cataphoresis, electrotonus, electrodiagnosis and high frequency currents. The work is illustrated with 87 text cuts illustrating apparatus and modes of application. The attempt to make the text easily comprehensible is, in a large measure, successful though the subject requires a knowledge of at least elementary physics for its satisfactory understanding. At the close of each chapter is a series of useful questions for review. It would seem that the book is much more likely to be of value in medical schools than in training schools for nurses.

Local and Regional Anesthesia. With Chapters on Spinal, Epidural, Paravertebral, and Parasaeral Analgesia, and on Other Applications of Local and Regional Anesthesia to the Surgery of the Eye, Ear, Nose and Throat, and to Dental Practice. By CARROLL W. ALLEN, M.D., instructor in Clinical Surgery at the Tulane University of Louisiana, New Orleans; Lecturer and Instructor in Genito-Urinary and Rectal Diseases at the New Orleans Polyclinic; Visiting Surgeon to the Charity Hospital. With an Introduction by RUDOLPH MATAS, M.D., Professor of General and Clinical Surgery at the Tulane University of Louisiana, New Orleans, etc. Illustrated. Philadelphia and London: W. B. Saunders Company. 1914.

This is a well-printed book of 600 pages covering every portion of the field of local anesthesia. Under this head, as is apparent from the title, Dr. Allen includes chapters on spinal and sacral anesthesia.

This is the book of an enthusiast, who has much practical use of the methods he describes, and has covered the literature upon the subject in a most extraordinary manner. It is unfortunate, indeed, that his extensive bibliography is eliminated from the book, even for the excellent reason of avoiding undue bulk. The author has been successively a student, assistant and associate of that brilliant, untiring and original surgeon, Matas of New Orleans, who nearly two decades ago planned and actually began a book on this subject. It will be somewhat of a surprise to a good many young surgeons to discover that Matas was one of the greatest and earliest investigators of local anesthesia in this country. His name has usually been associated with entirely different branches of surgery. His introduction is interesting and contains a brief summary of the various and unusual procedures which he carried out in those early years. Dr. Allen most enthusiastically credits his teacher with not a few of the great advances made in the early days of local anesthesia.

The book is composed of twenty-three chapters, beginning with history; then follows consideration of nerves and their sensations; osmosis and diffusion; various anesthetics; their dangers; technic; indications; and a detailed description of the methods in use upon the various anatomical areas of the body. As already noted, spinal, epidural, paravertebral, parasaeral anesthesia, and the anesthesia of the organs of special sense and the teeth, are included in the single volume. The author quotes freely from Braun, to whom he makes special acknowledgment. The book is marked by that thoroughness which it is customary at present to describe as German, and fortunately lacks the unnecessary prolixity of many German treatises.

It is superfluous to comment on the fact that the field of local anesthesia is limited at present only by infancy, and by the surgeon. There are few operations indeed which have not been successfully carried out under local anesthesia. It certainly does require perseverance and precise anatomical knowledge, but it is worthy of more general attention than has yet been paid to it in America. The book seems admirable and is unhesitatingly recommended.

The Gold-Headed Cane. BY WILLIAM MACMICHAEL, M.D. New York: Paul B. Hoeber. 1915.

This new American edition opportunely recalls to general professional familiarity a classic collection of medical essays written with the charm of a century ago and based on the story of the gold-headed cane carried successively by Drs. Radcliffe, Mead, Askew, Pitcairn and Bailey, whose biographies, as supposedly told by the cane, compose the substance of the book. The cane in question was deposited by the widow of its last possessor in the new college of physicians of London in 1825. Dr. Macmichael's felicitous exposition of its history was first published in 1827 and a second edition appeared the following year. In 1884 was published a third edition, in which the editor, Dr. William Munk, wrote a continuation of the narrative in excellent imitation of Macmichael's style, bringing the story down to the year 1871. This present fourth edition follows the text and illustrations of the second and represents the work as left in finished form by the author. In a charming preface, Dr. Francis R. Peckard of Philadelphia sketches the life of Macmichael and the history of his work and of the cane. Sir William Osler in his introduction briefly comments on the lives of the cane's possessors and points out that this fourth edition is published as a memorial to Dr. Radcliffe on the two hundredth anniversary of his death. A wholesome interest in the history of medicine and of its famous men is being fostered in these days as a desirable counteracting agent to the excessive scientific tendencies of the time, and few works could form a more appropriate introduction to such a study than this story of the lives of five of the more eminent British practitioners of the seventeenth and eighteenth centuries.

Transactions of the American Climatological and Clinical Association. VOL. 30. Philadelphia. 1914.

This volume records the proceedings of the American Climatological Association at its thirty-first annual meeting in Atlantic City, N. J., in June, 1914. It includes the president's address by Dr. J. M. Anders of Philadelphia, and a series of 23 papers presented at the ses-

sions of the meeting. Among these may be noted those by Dr. Edward O. Otis on "Unsolved and Debatable Problems in Tuberculosis;" by Dr. Arthur K. Stone on "Subnormal Temperature in Tuberculosis;" by Dr. Cleaveland Floyd on "The Interrelationship of Pleurisy and Empyema;" by Dr. Guy Hinsdale on "Atmospheric Air in Relation to Tuberculosis;" and by Dr. Nathaniel K. Wood on "percussion of the Lungs." Many of the articles are well and abundantly illustrated by attractive, full-page plates.

Infection and Immunity. A Textbook of Immunology and Serology for Students and Practitioners. By CHARLES E. SIMON, B.A., M.D., Professor of Clinical Pathology and Experimental Medicine, College of Physicians and Surgeons, Baltimore. Third edition. Svo, 351 pp., illustrated. Philadelphia and New York. Lea & Febiger. 1915.

The reviewer has had occasion to express his appreciation of an earlier edition of this work. The author has achieved his purpose in presenting a lucid and easily readable exposition of the subject of "Immunology and Serology." Practical applications are given with sufficient detail and clearness and are satisfactorily illustrated. The work is without undue pretense and contains an adequate bibliography appended to each chapter. It is to be particularly recommended for students and beginners in laboratory methods.

Materia Medica and Therapeutics. By LYNETTE A. PARKER, B.Sc., R.N., Instructor in Nursing and Health, Teachers' College, Columbia University. New York. Philadelphia and New York: Lea & Febiger. 1915.

This textbook for nurses aims to present the use of drugs from a scientific basis and an effort has been made to give only the important and practical points which form a foundation for the intelligent handling of drugs but not for their prescription. Detailed descriptions of the physical properties of the drugs have in many cases been omitted. After a series of initial chapters on weights and measures, solutions, pharmaceutical preparations, definitions, history, administration of medicines, toxicology, acids and alkalies, salts and the active principles of medicinal plants, the principal drugs of the pharmacopeia are considered in groups according to their action on various anatomic and physiologic systems and functions of the body. There are also chapters on prescriptions, on habit-forming drugs and on psychotherapy, hydrotherapy, electrotherapy, serotherapy and radiotherapy. A large amount of useful and available information is thus made accessible to

nurses within the relatively brief space of 300 pages. The work is well illustrated with 29 engravings and three attractive colored plates. It presents a rather dry subject in interesting and original form.

Bodily Changes in Pain, Hunger, Fear and Rage. By WALTER B. CANNON, M.D., George Higginson Professor of Physiology in Harvard University. New York and London: D. Appleton & Co.

In this monograph the author presents an account of his recent researches into the function of emotional excitement, with especial regard to the four primitive human and animal experiences of fear, rage, pain and hunger. These investigations into the bodily changes occurring in conjunction with these emotions have been conducted during the past four years at the Harvard physiological laboratory and there has been discovered a group of remarkable alterations in the bodily economy associated with the emotions, which may reasonably be regarded as physiological adaptations and responses nicely adapted to the individual's welfare and preservation. The present volume recording these experiments and their interpretation may be regarded as the elaboration and outgrowth of the author's earlier period of researches on the motor activities and alimentary canal, which appeared in his important volume on "The Mechanical Factors of Digestion," in the series of International Medical Monographs, which was reviewed in the issue of the JOURNAL for April 11, 1912 (vol. clxxvi, p. 564). The present work deals not merely with the effect of the emotions on digestion, but with the general organization of the visceral nerves concerned with the emotions, the relation of adrenal secretion and of carbohydrate metabolism to the emotions, the utility of the bodily changes produced by pain, the energizing influence of emotional excitement, the nature of hunger and the interrelation of the emotions. Of particular contemporary interest is the final chapter on alternative satisfactions for the fighting emotions, in which the author recognizes the fighting instinct as fundamental in mankind, and speculates on the possibility of the substitution for it, or rather, to employ the Freudian phrase, its sublimation into some form of the athletic instinct, which should afford a safe outlet for physical energy and gratification of the desire for conflict.

Each chapter closes with a brief bibliography on the subject which it considers and at the conclusion of the volume is a list of 20 published researches from the physiological laboratory in Harvard University on which the present account is based. Like its predecessor, this volume of Dr. Cannon's is to be regarded as deserving the highest praise as a valuable, original experimental contribution to the knowledge of the physiology of the emotions.

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THE RETIREMENT OF HEALTH COMMISSIONER GOLDWATER.

THE announcement that Dr. S. S. Goldwater is shortly to relinquish his position as head of the health department of New York has been received with profound regret, not only in that city, but wherever his admirable work in that capacity has become known and appreciated by those interested in sanitary science and the promotion of public health. When Dr. Goldwater accepted the commissionership it was with the understanding that the arrangement was to be temporary: and in response to urgent request, he has, in fact, remained in office for a considerably longer period than he originally anticipated. He is desirous to resume, in accordance with previous agreement, the post of superintendent of Mount Sinai Hospital, and the authorities of that institution are unwilling that this should be further delayed, especially

in view of the fact that the already very extensive buildings and work of the hospital are about to be materially enlarged, and in connection with this his services and advice are particularly required.

Under Dr. Goldwater's administration the progress made by the Department of Health has been remarkable, and many of the notable advances made have been referred to from time to time in the JOURNAL. Especially was comment made on the new sanitary code which, after the most elaborate preparation, both in the way of revision and providing many additional sections enlarging the department's field of operations, went into effect on January first.

Without further reference to what was accomplished in 1914, attention may be called to a report recently made by the commissioner to Mayor Mitchel, in which are recorded the many activities of the department in new directions during the present year. Among the noteworthy matters mentioned are the following: In addition to the new division of industrial hygiene another new division has been created, that of statistical research, and the effort will be made to utilize the work of this in such a way that other bureaus of the department will be guided in their own work by its findings. The department has advocated a higher standard of qualification for medical licensure, proposing that the present law should be so amended that, as is now the case in Pennsylvania and New Jersey, every graduate in medicine shall be required, before obtaining a license to practise, to have a training of not less than one year's duration in hospital or clinical work. In the meantime the department, having committed itself to such a standard, has requested the Municipal Civil Service Commission hereafter to admit no candidate to examination for appointment as medical inspector in the department who cannot show to his credit a year of clinical training. Post-graduate instruction in contagious diseases, including both clinical and bacteriological examinations, has been successfully organized at the Willard Parker Hospital. A special clinic of instruction has been established, under the auspices of the bureau of preventable diseases, to which all applicants for appointment to volunteer service in the tuberculosis clinics will hereafter be assigned for courses of instruction in physical diagnosis and for the study of branch-office and clinic routine. The division of efficiency and research has under way a careful

analytical study of the policies and especially the business methods of the bureau of laboratories. The Medical Societies of the Counties of New York and Kings, respectively, have been invited to coöperate with the department in the investigation of the work of the diagnostic laboratory, the efficiency of which is of such vital interest to the whole body of physicians in the city. A committee has been organized to formulate a plan for the establishment of a department training school for medical inspectors employed in the bureau of child hygiene. In collaboration with the Department of Education, there has been started, under the editorial management of the bureau of public health education, a publication entitled "School Health News," which is designed in part for the instruction of school teachers in matters of hygiene, and in part to stimulate coöperation between the school physicians and nurses on the one hand, and school principals and teachers on the other. The bureau of public health education has also undertaken, in coöperation with various neighborhood associations, the distribution of health leaflets in the form of "Neighborhood Chronicles," the first page of which gives the local news of a particular district, while other pages are devoted to general health notes. Special instructions have been issued to department employees to coöperate with the Tenement House Department in carrying out the law prohibiting the overcrowding of tenements. Recognizing the fact that office workers are being subjected more and more to conditions of employment which are injurious to health, the department has undertaken to investigate existing conditions, and, if necessary, will formulate a program for their amelioration. An investigation of a number of commercial laundries having shown that in the prevailing laundry methods neither the height of the temperature nor the duration of the application of the cleansing solution is sufficient to destroy completely all pathogenic organisms, the department has issued regulations for the control of laundries. A series of prosecutions has been begun for violation of the section of the sanitary code which prohibits the false labeling of medicinal preparations. This includes "any statement, design or device regarding the drug or its ingredients, or regarding its or their action on diseased conditions, which statement, design or device shall be false or misleading in any particular." The department has initiated a movement

for the prevention of street fatalities due to the operation of automobiles by incompetents. An educational lunch room has been opened in the department building. While the primary object is to provide a wholesome lunch for employees at cost price, an effort will be made to promote a knowledge of food and nutrition among the patrons of the lunch room and the public generally. As the abuse of alcohol constitutes an important public health question, a committee has been organized to outline a definite program of educational work among all classes against intemperance.

THE REALITY OF PSYCHOGENETIC AFFECTIONS: THE TRAUMATIC NEUROSES.

We should not forget that when we say psychic factor or psychogenetic induction of disease, we really do not mean anything more than a physiological process, for as a matter of fact, in any psychic reaction an actual change takes place in the energy output of the body, and we only state it in psychologic terms for brevity and convenience. Pavlow, Cannon and Crile have shown very conclusively the physical concomitants of some of the psychic reactions. Clinical experience has shown that psychic stimuli may cause intense reactions in the difference of the heart beat, extra secretions of various organs and alterations of the metabolism. These are all physical results of psychologic stimuli; so, after all, we are only dealing with medical, physiological facts when we talk about psychological or psychogenetic reactions.

The traumatic neurosis is purely psychic and can be dealt with psychologically only. (*Journal Abnormal Psychology*, 1910, June.) Its pathogenesis is derived from a false notion of the patient, which induces depressing emotions that disturb both bodily health and life relations. A clear illustration of the mechanism is that of the "conditioning" of the gastric reflex of dogs by psychological stimuli, whether these are pleasurable or painful. The removal of the extraneous suggestion would remedy any "neurosis" but for the fact that memory maintains its action; so that the mental content must be modified at its foundation, and this requires considerable analysis of the patient's trends. Hence the complete failure of such naive procedures as re-

assurance and suggestion. (*New York Medical Journal*, January, 1915.) Law suits and malingerings, so often interwoven with these cases, have created misunderstandings. But indemnity is not necessarily curative even of the malingerer. A case which lasted seven years after receiving heavy damages is an instance in Washington. (*American Journal Medical Sciences*, December, 1914.)

In the complicated case, proper psychological reconstruction, made possible by clear analysis, inevitably cures, as the mechanism of neurotic disturbances after accidents differs in no way from that which we find when there has been no accident at all. Furthermore, its nature is not of a complexity beyond the understanding of a layman; so that its principles can readily be grasped when presented in court by an expert witness who really understands them. (*New Orleans Medical Journal*, May, 1915.)

The object of treatment is not merely to sidetrack an unpleasant thought or emotion, but to re-educate the patient's tendencies in a fruitful direction which will preclude reactions of a disquieting or hurtful kind. The process can be most satisfactorily accomplished only when the practitioner has analyzed the psychic factors which enter into the disturbance. He does this in order to have an understanding of the mental processes with which he will have to deal in reconstructing the patient's reactions to the surroundings which have initiated or are maintaining his psychosis. ("Hysteria and Its Modern Treatment," *J. A. M. A.*, December, 1912.)

The procedure may be very complex, but in principle it does not differ from the very simple conditioning, reconditioning and deconditioning of autonomic reflexes practiced by Pavlow upon dogs in his experiments upon the functions of the digestive glands.

The principle is one of associating with useful activities, which very often means social relationships, the pleasurable feelings for which the patient has substituted some distressing emotion. When this is accomplished there ensues the spontaneous disappearance of the disagreeable feelings which are at the root of the disorder, thanks to a power of storing up impressions in the human cortex in the form of ideas, the constant activation of which may thus interfere with proper social adaptation through their "association" into a painful complex. ("Occupation Cramp," etc., *J. of Neurol. u. Psych.*, 1912, Bd. 19, etc.)

MIXED INFECTION IN TUBERCULOSIS.

THE specific character of tubercular infection should not give the impression that the tubercle bacillus is the sole organism playing a part in or influencing the course of this disease. Just as tuberculosis may be accompanied by or complicated with other diseases, which add to the burden that the body must overcome, and which so unfavorably influence the course of the dominant disease, just so may there be and are there frequently associated with the tubercle bacillus other organisms, which, though they are not causative of distinct disease entities, add materially to the severity, rapidity and the character of the disease. In the rapid fulminant type of pulmonary tuberculosis, in the so-called galloping consumption, where there is such rapid loss of weight, large variations and remissions in temperature, drenching sweats—very much as in pyemic conditions—with marked destruction of tissue, there is the simultaneous action of other and commonly pus-forming organisms. This is particularly understood in consolidation and cavity formation, which, while they may be caused entirely through the action of the tubercle bacillus, are more likely the eventualities following mixed infection with other organisms—for it is here that such organisms are so frequently found.

The tubercle bacillus itself is culturally intractable—is slow growing, difficult to grow, delicate and selective of the media in which it will grow—and when acting alone in the tissues behaves in like manner. It is not properly a pyogenic organism. The pus in the so-called cold abscesses in tubercular conditions is usually sterile—is not pus at all, but mixed debris from the disintegration of tissues in these conditions. And there is a positive danger in interfering with such infections for fear of converting these sterile tubercular abscesses into pyogenic abscesses, with serious effect to the patient.

In uncomplicated tubercular infection there is a tendency to subnormal temperature, and the afternoon rise of temperature is not a universal feature in pulmonary tuberculosis. The afebrile, sweatless and slowly progressing types of this disease are cases of pure infection. Except in the acute miliary form, tuberculosis is a local lesion and not a bacteremia or septicemia and, therefore, except in conjunction with a mixed infection, leucopenia is usually the rule. Leucocytosis is, however, a constant accompaniment of

cavity formation, so much so that the continued absence of leucocytosis is considered good evidence of the absence of cavity in cases where the physical signs seem to point, but uncertainly, to that condition. The leucocytosis in pulmonary tubercle is usually polymorphonuclear.

The organisms most frequently found in mixed tubercular infections are the *streptococcus pyogenes*, the *staphylococcus pyogenes aurus*, the *diplococcus pneumoniae*, the *pneumobacillus*, and allied capsulated organisms. While the tubercle bacillus will not flourish culturally in symbiosis with other organisms, it does seem that symbiosis within the body favors rapid destruction of tissue, cavity formations, variations in temperature, sweats, rapid loss of weight and the induction of leucocytosis. In this connection the examination of the sputum has an added value besides merely as diagnostic of the specific presence of the tubercle bacillus, in the determination of prognosis, since an infection solely with tubercle bacilli as evidenced on microscopic examination is of good prognostic significance.

In the treatment of tuberculosis the dust-free, dry climate, away from the centres of population, with their congestive conditions and foci of infections, is as much a factor in anticipating mixed infections in individuals whose vitality is already sufficiently low and peculiarly susceptible to all infections, as it is in merely creating conditions unfavorable for the growth of the tubercle bacillus.

THE DIFFERENTIATION OF BODY TYPES.

IN another column of this issue of the JOURNAL we publish a communication calling attention to a paragraph in which Mr. Galsworthy has recently denoted the differentiation between the two body types which Dr. Goldthwait and Dr. Bryant in the columns of this JOURNAL have recently described as herbivorous and carnivorous. It is of interest in this connection also to call attention to an article by Dr. McEvoy on "Stomach Diseases from a Medical Standpoint," which appeared in the issue of the JOURNAL for November 3, 1910, in which the differentiation of body types and the clinical importance of this differentiation is pointed out. In 1914 also Dr.

McEvoy presented before the Norfolk District Medical Society a continuation and further elaboration of his method of distinguishing these body types, which he classes as broad, normal and narrow. As was pointed out in our editorial of June 17, this recognition of differing physical types in man is not a new observation, but the understanding of its meaning has been a relatively recent development. In this comprehension the work of Goldthwait and Bryant seems to have been of particularly illuminating value and this value is increased by the citation of the interesting parallel comment by Mr. Galsworthy who, as a layman, has noted the significance of the physical phenomena of body types and their differentiation.

THE USE OF IODINE IN SURGICAL FIRST AID.

ONE of the interesting advances in surgical first aid which has come into prominence in conjunction with the present European War has been the use of iodine for the immediate sterilization of wounds. For this purpose a solution of iodine is put up in 3½% in glass ampoules, each containing about 2 c.c. and provided with a rubber bulb for expression of the contents. These ampoules can readily be carried by each soldier as part of his equipment, and the men are instructed how to break off the glass tip of the ampoule and inject the contents into the wound or spread it over the injured surface. Preliminary statistics from the European War hospitals indicate that wounds treated in this way with the immediate subsequent application of a sterile dressing show a much lower percentage of serious infection than wounds treated by sterile dressing without iodine. These first aid ampoules are equally applicable in times of peace to the manifold open traumata of civil and industrial life.

CHOLERA IN AUSTRIA.—Report from Zurich, Switzerland, on July 16, states that the Austrian ministry of the interior has officially announced that on July 12 there were in the Austro-Hungarian Empire 809 cases of Asiatic cholera, as against only 77 cases on July 8. The rapid increase of this disease has occurred chiefly among prisoners of war in Galicia.

A NEW MEDICAL SOCIETY.

In another column of this issue of the JOURNAL we are glad to note the establishment in Boston of a new medical society, the "New England Society of Dermatology and Syphilis." The multiplication of medical societies leads sometimes to confusion and duplication of work, but in the present instance there seems a definite and important field for this latest organization. The clinical facilities for the study and advancement of dermatology and syphilis in the larger cities of New England are of a value and extent second only to those of the greatest metropolitan centers. It is felt that such a society as that just established will serve not only to coordinate the work of those already engaged in this field but to stimulate the interest of general practitioners in a due attention to this important special branch of medicine. In behalf of the profession the JOURNAL is glad to extend cordial greetings and good wishes to this latest medical society.

MEDICAL NOTES.

MEASLES ON THE DECREASE IN NEW YORK.—According to figures compiled by the Bureau of Records of the Department of Health, the outbreak of measles which has prevailed in New York City for the past few weeks has passed its height and is now declining. The decline is clearly reflected in the death-rate, 11.02 per one thousand of population, as compared with 11.24 for the corresponding week of 1914. This difference of .22 points in the weekly rate means an increase of 23 deaths. The death rate of the first 28 weeks of 1915 is lower than the same rate for the corresponding period of 1914, when it was 14.51. Measles and scarlet fever were the only epidemic diseases to show increase over the corresponding week of last year. The others all showed a gratifying decline. Organic heart disease showed an increase of 22 deaths, but when considered in conjunction with chronic Bright's disease, the increase amounted to but one death. There was an increase of 22 deaths from pulmonary tuberculosis last week, as compared to the corresponding week of last year. This increase is undoubtedly to be attributed to the changeable weather that prevailed, which hastened the end of those sufferers from this disease whose life was on the ebb.

INCREASE IN FOURTH OF JULY ACCIDENTS.—According to an investigation just completed by the Department of Health no fatal casualties attended the celebration of the 4th of July in New

York. There was, however, an alarming increase in the number of accidents that resulted from the misdirected enthusiasm of the younger celebrants. Inquiry at the larger hospitals of the city, particularly those having an ambulance and an out-door service, elicited the information that the number of 4th of July accidents showed an increase of more than 100% over similar accidents in 1914, and that most of the wounds had been caused by the use of blank cartridges. Post-mortem inquiry will not remedy that which has already happened, but the results of such inquiry should be used next year to re-stimulate public interest in, and support for, a safe and sane Fourth.

BEQUEST TO UNIVERSITY OF PENNSYLVANIA.—The will of the late Samuel Dickson of Philadelphia establishes a trust fund of \$100,000, one-half of the proceeds of which is to be devoted to the William Cutler Clinical Laboratory of Medicine.

AMALGAMATION OF TWO MEDICAL COLLEGES.—It is announced that the Hahnemann Medical College of San Francisco has offered to convey its property to the University of California and to cease giving separate instruction, on condition that two professorships, in homeopathic materia medica and therapeutics be maintained at the University of California Medical School. The instruction in these subjects is to be elective.

EUGENIC MARRIAGES IN WISCONSIN.—Report from Madison, Wis., on July 10, states that since the so-called eugenic marriage law went into effect in that state the total number of marriages has declined from 21,052 in 1913 to 17,245 in 1914.

THREE OUTBREAKS OF SMALLPOX.—The weekly report of the United States Public Health Service for July 2 notes that during the week ended June 12, 1915, five cases of virulent smallpox and two deaths were reported at Brownsville, Texas, and seven cases and two deaths at New Orleans, La. During the week ended June 26, two new cases of smallpox were reported at New Bedford, Mass., making a total of twenty cases, of which nine were fatal.

WOUNDS INFECTED BY PHOSPHORUS.—It is reported in the publications of the Société de Biologie by Victor Henri that wounds received from German shrapnel are often seriously infected by phosphorus. The balls of shrapnel are covered by a violet red powder composed of over ninety per cent. of phosphorus. When a soldier is hit by a bursting ball the powder is either carried directly into the wound or is ignited and oxides of phosphorus or white phosphorus enter the wounds, in which latter case death is likely to ensue shortly. The phosphorus coming in contact with the tissues disposes them to morti-

fication and provides abundant opportunity for thriving bacteria.

A PUBLICATION ON PREVENTION OF BLINDNESS.—The National Committee for the Prevention of Blindness has recently issued a pamphlet prepared by the Ohio Commission for the Blind called "Common Causes of Blindness in Children," in which are clearly set forth various common eye diseases and valuable advice and suggestions as to the proper protection of eyesight. The booklet is illustrated with striking pictures and its simply stated facts and rules are well calculated to impress themselves on those who, by their ignorance or carelessness, might be the cause of unnecessary blindness in themselves or in those dependent on them.

PREVALENCE OF MENINGITIS, MALARIA, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID.—The weekly report of the United States Public Health Service for July 2 notes that during the month of May, 1915, there were reported eighteen cases of cerebrospinal meningitis in Virginia, twelve in Ohio and five in Mississippi. During the same period there were reported in Mississippi 7092 cases of malaria, 2187 of pellagra and 254 of typhoid fever. In Virginia there were also eighteen cases of poliomyelitis, 108 cases of smallpox and 149 cases of typhoid. In Kansas there were 301 cases of smallpox and 36 of typhoid, in Ohio 305 of smallpox and 207 of typhoid, and in Indiana 487 of smallpox and 61 of typhoid.

TYPHOID FEVER IN THE UNITED STATES.—A recent bulletin of the United States Public Health Service calls timely attention to the discreditable fact that the proportion of the prevalence of typhoid fever in this country is from two to five times as great as the rate in leading European nations. During the past year there were approximately 400,000 cases of typhoid fever in the United States, with 30,000 deaths. The bulletin continues in part as follows:

"In many American cities there has occurred within the last twenty years a considerable reduction of typhoid fever. Due in a large part to improved sanitary conditions in the cities, the typhoid rate for some entire states has shown a material decrease. For the country as a whole, according to the available figures, the rate has been reduced about 50% in the last forty years. But the present rate is about the same as that which prevailed in some of the other advanced nations of the world thirty years ago. In other words, the United States is a generation behind the times in respect to the reduction of its typhoid rate. In recent years a specific method for increasing individual resistance to typhoid germs has been employed. This is known as anti-typhoid inoculation or 'vaccination.' It is pointed out, however, that the protection given by anti-typhoid inoculation is relative, not abso-

lute, and that such inoculation is not to be regarded as a substitute for sanitation."

NEW YORK ASSOCIATION FOR IMPROVING THE CONDITION OF THE POOR.—The Department of Social Welfare of the New York Association for Improving the Condition of the Poor was given, in April, 1913, by Mrs. Elizabeth Milbank Anderson, a memorial fund to be used "in fostering preventive and constructive social measures as distinguished from relief measures." A recently published report records the various uses to which the fund was put. The Bureau of Welfare of School Children, in coöperation with the Health Department, took up the work of medical inspection of school children, dental clinics, and the sanitary survey of school buildings. It had been estimated that of the children examined, 69.7% were reported in need of treatment, and of that number 23.9% had received adequate attendance. In connection with the New York School Lunch Committee, it supplied approximately one and one-half million portions of food to school children, and has taken steps to maintain lunch rooms in high schools where lunches may be furnished the pupils at actual cost. In coöperation with the Bureau of Public Health Education of the Department of Health a Bureau of Food Supply has been established and a Food Supply Store, which is operated on strictly business principles, is on an entirely self-supporting basis. The Bureau of Public Health and Hygiene made a sanitary survey of the various public bathing pools in Manhattan, and a campaign to increase the attendance at the Milbank Memorial Bath resulted in an increase of 2896 bathers in one month over a similar period of the previous year.

Completely financed from Department of Social Welfare funds, the activities of the Ventilation Commission are under the direction of Professor C. E.-A. Winslow, the permanent chairman. The commission is now completing the second year of its investigation by means of which it is attempting to determine, through the experimentation plant established at City College and the specially equipped public school in the Bronx, the real importance of the chemical theories of air vitiation, the effects of temperature and humidity upon physiological reactions, working conditions, appetite, etc. A similar series of measurements is being conducted regarding the effect of dry, cold and recirculated air, of various methods of air distribution in a room, types of window ventilation, etc. As a result of this investigation it is expected that adequate and reliable standards of proper ventilation will be determined upon, and practical, yet scientific, methods of ventilation for schoolroom, workshop and home recommended.

EUROPEAN WAR NOTES.—There is increasing evidence of the shortage of medical men in

Great Britain, not so much in the army as at home, where the remaining practitioners are greatly overworked attending to the patients of their colleagues at the front. In Germany, on the other hand, there appears to be no such shortage since the recent increase in the number of medical men in that country is considerably higher. In 1886 there were 26,452 physicians in Great Britain and only 16,292 in Germany, whereas in 1910 the number of physicians in Germany had increased 100% and that in Great Britain only 33%.

In its issue of July 3 the *Lancet* chronicles, as follows, the arrival in London of the surgical unit from the University of Chicago:—

"There arrived in England from the United States last week a complete unit known as the Chicago unit, whose services have been accepted by the War Office as the full medical and nursing establishment for a general hospital of 1040 beds. The unit consists of 32 medical men and the nursing staff of 75, including the matron. The medical staff includes, besides physicians and surgeons, specialists in eye, nose, throat and ear, and oral surgery, a radiographer, and a pathologist. The medical men of this unit have been carefully selected out of several hundreds of applicants, the senior officers being all men of established position, while the nurses are all fully trained and have served in large general hospitals in the United States. The junior members of the Chicago unit were temporarily distributed among various general military hospitals in London on the day of their arrival, pending the departure of the unit to its allotted sphere of action. It is planned to keep the hospital corps intact for at least six months, its subsequent permanency being assured by the large waiting list of American medical men and nurses ready to fill up the places of those who may then wish to retire. All members of the unit have been inoculated, in addition to the customary smallpox and typhoid vaccination, with the new Plotz vaccine against typhus fever, supplied from the Mount Sinai Hospital, New York."

The Victoria Cross has recently been awarded for distinguished gallantry to Dr. Francis Alexander Caron Serimger, surgeon-captain of the 14th Battalion, Royal Montreal Regiment, Canadian Army medical service. In the head-quarters' report recommending Dr. Serimger for this honor, his conduct was described as follows:—

"On the afternoon of April 25, 1915, in the neighborhood of Ypres, when in charge of an advanced dressing station in some farm buildings, which were being heavily shelled by the enemy, he directed under heavy fire the removal of the wounded, and he himself carried a severely wounded officer out of a stable in search of a place of greater safety. When he was unable alone to carry this officer further, he remained with him under fire till help could be obtained. During the very heavy fighting between April

22 and 25, Captain Serimger displayed continually day and night the greatest devotion to his duty among the wounded at the front."

On July 17 the total of the principal New England relief funds for the European War reached the following amounts:—

Belgian Fund	\$265,114.25
Red Cross Fund	136,998.60
Jewish Fund	65,225.86
Polish Fund	48,728.01
British Imperial Fund	31,201.17

The principal state contributions to St. George's Fund are as follows:—

Massachusetts, \$10,517.69;	Pennsylvania, \$4,-
\$30.41;	New Jersey, \$4,032; Connecticut, \$3,-
New York, \$3,173.57; Illinois, \$3,139.89;	Pacific Coast, \$2,148.92; Michigan, \$1,865.75;
Ohio \$1,373.32; Rhode Island, \$1,200.45.	

BOSTON AND NEW ENGLAND.

NEW ENGLAND SOCIETY OF DERMATOLOGY AND SYPHILIS.—On May 6, 1915, at a meeting of physicians from various New England cities, held at the Massachusetts General Hospital, there was formed the New England Society of Dermatology and Syphilis. The following officers were elected: Dr. Abner Post, president; Dr. Townsend W. Thorndike, vice-president; Dr. Charles J. White, secretary. Boston was chosen as the meeting place of the society. It is proposed to hold four meetings a year between the months of October and May at some hospital, and to make the clinical exhibition and demonstration of cases a prominent feature of each meeting. The success of the clinical session has already been assured by the heads of the departments for dermatology and syphilis in several hospitals who have promised the use of the combined material of their several clinics. The declared object of the society is to promote the interests of dermatology and syphilography in New England. The meeting recognized the fact that, while the number of specialists has steadily grown larger, the general medical public has also given many signs of increasing interest in these subjects. It was felt, therefore, that the society would best fulfil its purpose by including both classes in its membership, and, accordingly, has opened its membership to all reputable physicians practising in New England.

On these foundations the society asks the support and co-operation of the profession at large. Applications for membership may be sent to Dr. Charles J. White, 259 Marlborough Street, Boston.

THE BOSTON FLOATING HOSPITAL.—In the JOURNAL of July 8 mention was made of the staff of the Boston Floating Hospital for this season. The name of Dr. Elmer W. Barron is now added as visiting physician in the day patients' department of the hospital.

The trustees desire all persons interested in the institution to have opportunity to inspect the hospital and see how its work is conducted.

The boat returns daily (including Sundays) at 4.30 in the afternoon, to North End Park Pier, Commercial Street, where visitors are welcome until 7 p.m.

BACKWARD CHILDREN IN BOSTON SCHOOLS.—In September there will be opened in Boston, under the direction of Miss Ada M. Fits, a school for backward children, with an enrollment of about 750 pupils. Examination of these pupils, made by the medical department of the schools, showed that in very few instances was mental deficiency the cause of the backwardness, but often lack of sufficient food, and in many cases insufficient sleep and defective teeth were contributing causes in keeping pupils below normal. It is expected that by regulating habits of living to hygienic principles and with proper instruction, the majority of pupils will later be enabled to enter their regular classes.

BOSTON INSTRUCTIVE DISTRICT NURSING ASSOCIATION.—The report of the Boston Instructive District Nursing Association for June, 1915, states that during that month 10,777 visits were made by nurses. There were 928 new cases. One patient, during the past five years, has received 990 visits and is now dead.

MILK AND BABY HYGIENE ASSOCIATION.—The semi-annual report of the Milk and Baby Hygiene Association shows a steadily growing increase in the number of babies, both sick and well, that the Association has under its supervision. The number cared for during the first six months of this year was 3007, an increase of 18% over the first half of 1914. The attendance at 233 "well baby clinics" was 11,398, an increase of 47% over 1914. Nurses made 23,965 home visits and four extra nurses are doing summer work. Contributions to the work of the association may be sent to F. Abbot Goodhue, treasurer, 26 Bennet Street, Boston.

The following named persons were elected members of the medical advisory committee of the association: Richard M. Smith, M.D., chairman; Henry I. Bowditch, M.D., Walter B. Cannon, M.D., Charles Hunter Dunn, M.D., Arthur A. Howard, M.D., Maynard Ladd, M.D., Ralph C. Larabee, M.D., John Lovett Morse, M.D., Milton J. Rosenau, M.D., Fritz B. Talbot, M.D., and Charles W. Townsend, M.D.

HOSPITAL BEQUESTS.—The will of the late Mr. Frederick S. Pearson of Great Barrington, Mass., who died at the sinking of the *Lusitania* in May, was filed on July 12 for probate at Pittsfield, Mass. It contains bequests of \$50,000 each to the Lowell (Mass.) General Hospital and to the House of Mercy Hospital in Pittsfield, Mass.

PREVENTION OF RABIES IN BOSTON.—In last week's issue of the JOURNAL we noted the prevalence of rabies in several towns of this Commonwealth and the local measures undertaken for its

suppression. On July 12 the Boston City Council passed an order requiring that all dogs within the city limits be muzzled or kept under restraint for the next ninety days.

COMPLICATION IN DENTAL REGISTRATION.—In the issue of the JOURNAL for April 15 we commented editorially on the dental registration bill then pending before the Massachusetts General Court; and in the issue of June 10 we noted its final passage and its approval by the Governor. The new law went into effect on May 31, and as a result there has arisen a peculiarly complicated situation.

The act created a new board, to be known as the Board of Dental Examiners and provided that it should consist of the then members of the old Board of Registration in Dentistry.

The old board began on May 24 a series of examinations which were not completed until June 1. The examinations were conducted under the old law and did not include a demonstration in prosthetic dentistry, as is required by the new law.

This examination was taken by 201 candidates, of whom 115 passed. The question now arises, however, whether even the successful candidates can legally be registered as dentists in this Commonwealth, since their examination did not include the new requirement provided in the bill. Being in doubt as to their rights to issue certificates under these circumstances, the members of the Board referred the matter to the attorney-general for his opinion and decision. The following is the communication as submitted to him:—

"The Board of Dental Examiners of this Commonwealth respectfully request your opinion on section 7, chapter 301, General Acts (an act relative to the practice of dentistry)."

"The June meeting of said board for the examination of candidates having been advertised in March and April to be held on June 1, 2 and 3, 1915, under Chapter 137 of the Acts of 1887, and amendments thereto, did not include demonstrations in prosthetic dentistry, as provided for in the law approved by the Governor May 31, 1915.

"The Board of Dental Examiners desires to know if a certificate of fitness to practice dentistry can be issued to those who passed successfully the examination. What rights, if any, have those who failed in their examination?"

In reply to these queries the attorney-general rendered the following decision:—

"In my opinion your first question must be answered in the negative, since the right of the board to issue certificates under the provisions of the act is based upon the prerequisite that candidates have been examined in the manner prescribed by the statute."

"As to your second inquiry, I am of the opinion that those who failed in the examination which was taking place at the time of the passage of the act have no rights as against the

Commonwealth, other than to have the opportunity of being examined upon the subjects required by the provisions of the statute. If they are now examined in relation to their knowledge and capacity in prosthetic dentistry, and the board, taking into consideration their capacity in relation to this subject, should be still of the opinion that they are not qualified to practice dentistry in this Commonwealth, I am of opinion that they can have no complaint."

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending July 13, 1915. Diphtheria, 58, of which 12 were non-residents; scarlatina, 39, of which 7 were non-residents; measles, 97; tuberculosis, 65, of which 1 was non-resident. The death rate of the reported deaths for the week was 13.27.

Obituary

FREDERICK HOWARD MARSH, M.A.,
M.C., Sc.D. (CANTAB.), F.R.C.S. (ENG.)

DR. FREDERICK HOWARD MARSH of Cambridge, England, who died on June 24 at Downing Lodge, was born at Homersfield, Suffolk, in 1839. He entered the medical school of St. Bartholomew's Hospital, London, in 1858, and in 1861 qualified as a member of the Royal College of Surgeons of England, of which he became a Fellow in 1866. During the decade following his medical studies at St. Bartholomew's he served as demonstrator of anatomy in the medical school and held other minor appointments. Finally in 1873 he became assistant surgeon to St. Bartholomew's Hospital and shortly thereafter surgeon to the Children's Hospital on Great Ormond Street. In these positions Dr. Marsh served during the busy years of his early professional life. In 1892 he became full surgeon at St. Bartholomew's and in 1904 retired as consulting surgeon to that institution and to the Ormond Street Hospital. Throughout this period he was also lecturer in anatomy and in surgery at the medical school. He early acquired a reputation as a consulting surgeon, especially in diseases of the joints, and this reputation was soundly built upon his profound knowledge as an anatomist and pathologist. In 1895, as a result of his extensive clinical experience he published his book on "Diseases of the Joints and Spine," which has become a standard work on orthopedics. He also edited the clinical essays and lectures of Sir James Paget, his predecessor at St. Bartholomew's and likewise a native of Suffolk. He was a frequent contributor to the *Lancet* and to other medical publications. In 1902 Dr. Marsh delivered the Bradshaw Lecture before the Royal College of Surgeons on "Infective Arthritis."

In 1903, just prior to his retirement from active hospital work, Dr. Marsh was appointed regius professor of surgery at the University of Cambridge, a position which had been in abeyance since the death of Sir George Murray Humphrey. In this new position he manifested the same zeal and enthusiasm that he had shown as a teacher in London and he was enabled to continue his clinical interest at Addenbrooke's Hospital in Cambridge. His popularity was evidenced by his election in 1907 to the mastership of Downing College. These two Cambridge offices he continued to hold at the time of his death. He continued also prominent and successful as a consultant in both Cambridge and London, and in recent years had served as honorary colonel in the East Anglian division of the territorial force of the Royal Army Medical Corps. As a teacher he was breezy, unconventional, genial, courteous and good natured and had a remarkable facility for simple and clear exposition.

Professor Marsh was vice-president of the Royal College of Surgeons of England in 1898, an honorary Fellow of the Royal Academy of Medicine in Ireland, a corresponding member of the Orthopedic Society of New York and a member and former president of the Clinical Society of London. He is survived by his widow, one daughter and one son.

Miscellany.

A JUDICIAL OPINION ON CHIROPRACTIC.

In the issue of the JOURNAL for June 10 we commented editorially on a recent legal decision in the case of the New England College of Chiropractic, Inc., and cited a portion of the judge's opinion. The brief for the Commonwealth in this case argued that the statutes are constitutional and that the jury were warranted in finding that the defendant practised medicine. Upon this basis it was contended that the exceptions taken by the defendant from the superior court should be over-ruled. The complete text of the judge's opinion upon this case is as follows and presents several points of especial interest to members of the regular profession.

"The defendant has been found guilty of violation of Revised Laws, Chap. 76, Sect. 8, in that he practised medicine without being lawfully authorized. He defends on the ground that he is a chiropractor and that his acts do not constitute a violation of the statutes. The evidence tended to show that he kept an office in Boston, indicated by a sign on which was his name, followed by the word chiropractor; that he practised for pay; that he said that the basis of

chiropractic is the adjustment of the vertebrae of the spine; that the vertebrae when not in their normal positions press upon the nerves of the spine; that the malposition of these vertebrae was the cause of abnormality and that an adjustment of these vertebrae to their normal positions would remove the pressure at the spine; that he said that he did not cure, that he simply adjusted. He testified that "chiropractic is the specific science that removes pressure upon the nerves by adjustment of spinal vertebrae; there are no instruments used, it is done by the hand only." The treatment pursued by the defendant was to have those who resorted to him go into an inner room and remove their outer garments until they were stripped to the waist. The patient then took a sitting position. The defendant examined down the spine, beginning at the top, by feeling with his fingers to see whether each vertebra was in its proper position. The method to discover whether a vertebra was out of position was by making a gliding move of the three middle fingers of the right hand, which constituted the process of "palpation," whereby one vertebra was compared with another. As a result of this "analysis" the defendant was able to tell whether vertebrae were out of alignment or out of their normal position.

In making "adjustments" the patient was placed on a low table with face downward, and the vertebra which was out of condition was given a quick thrust or push by the hands of the defendant. The acts performed by the defendant constitute, first, an examination of the vertebrae of the spinal column and a determination whether they are in a normal position; and, second, a manipulation of such of the vertebrae as are found to be out of position, so that they will become regular and correct with reference to each other. Although the defendant did not prescribe medicine, and testified that he paid no attention to the patient's description of symptoms of disease, yet it is obvious that his purpose was to treat the human body in order to make natural that which he found abnormal in the narrow field of his examination. The removal of pressure upon nerves is a means of relieving the ills flowing from that source. "Chiropractic" is defined as "A system of healing that treats disease by manipulation of the spinal column." (Webster's International Dict.) The plaintiff's manipulation was of a most important part of the body and related to a nerve center. It might have been found that it could have no other aim than a prevention of disease or relief from existing disarrangement of body functions. That which the defendant did and its manifest purpose might have been found to be practising medicine within the meaning of the statute. Medicine relates to the prevention, cure and alleviation of disease, the repair of injury, or treatment of abnormal or unusual states of the body and their restoration to a healthful condition. It includes a broad field. It is not con-

fined to the administering of medicinal substances or the use of surgical or other instruments. It comprehends "a knowledge not only of the functions of the various organs of the human body, but also the diseases to which these organs are subject, and the laws of health, and the modes of living which tend to avert or overcome disease, as well as the specific methods of treatment that are most effective in promoting cures." (Knowlton, C. J., in Commonwealth v. Jewelle, 199 Mass. 558, 560.) In order to practise medicine one need not cover the entire field of the science. If he devotes himself to a very restricted part of it he still may be found to practise medicine. It is matter of common knowledge that there has been great specialization in that profession in recent years. To that effect are the decisions: Commonwealth v. Porn, 196 Mass. 326. People v. Gordon, 194 Ill. 453. Witly v. State, 173 Ind. 404. People v. Allcutt, 117, App. Div. 546, affirmed in 189 N. Y. 517.

It is of no consequence that the defendant abstained from the use of the words diagnosis, treatment, or disease, in description of what he did, and employed the terms "analysis," "palpation," and "adjustment." The acts which he did and their manifest design are to be examined rather than the words used, in order to ascertain the true nature of the defendant's conduct. A physical examination of the vertebrae, a decision whether they are in normal position or not, and strong manual pressure upon them with the end of changing the position with reference to each other of those found to be irregular, and thereby relieving pressure upon nerves, may be found to have such relation to the cure or prevention of disease or the relief of pain as to constitute the practice of medicine. Numerous decisions upon kindred facts point in the same direction: State v. Corwin, 151 Iowa, 20. Green v. Hodges, 91 Kan., 658, State v. Smith, 233 Mo. 242. Swarts v. Siverney, 35 R. I., 1. State v. Grenier, 63 Wash. 46.

The judge stated to the jury, without objection or exception, that "the defendant did not claim that he came within any of the exceptions of Sect. 9 of Chap. 76, of the Revised Laws." Hence it is not open to the defendant now to contend that his practice rightly may be described as "cosmopathic method of healing," the final exception in Sect. 9. Even if this point had been saved, there is nothing in it. "Cosmopathy" is defined in the Standard Dictionary as "open to the access of super-normal knowledge or emotion supposedly from a supernatural world." Without undertaking to decide what a "cosmopathic method of healing" may be, plainly it does not include the defendant's operations.

The statute as thus construed is constitutional. That was decided in Commonwealth v. Porn, 196 Mass. 326, and affirmed in Commonwealth v. Jewelle, 199 Mass. 558. A somewhat similar statute was upheld in Hewitt v. Charier, 16 Pick. 353. To the same effect in principle are

Dent v. West Virginia, 129 U. S. 114, and Collins v. Texas, 223 U. S. 288, and cases there cited. See also State v. Johnson, 84 Kan. 411. The protection of the public from those who undertake to treat or manipulate the human body without that degree of education, training and skill which the legislature has prescribed as necessary to the general safety of the people is within the police power of the state. This general purpose may be effectuated by requiring even of those who propose to confine their practice to a narrow specialty a much broader knowledge of the subject, provided such qualification is regarded by the legislature as necessary for the practice of any branch of medicine. The statute does not impair in any constitutional sense the liberty of the defendant. The protection of the public health is an object of such vital importance to the welfare of the state that any rational means to that end must be upheld. The defendant is placed in no worse position than others. The circumstances that Revised Laws, Chap. 76, Sect. 9, to an extent (see Com. v. Delon, 219 Mass. 217), exempts certain classes, such as osteopaths and pharmacists, and those practicing Christian Science, mind cure, massage and others, does not render the statute unreasonable as to the defendant nor deny to him the equal protection of the laws. Rational classification is within the power of the legislature. Its determination in this regard cannot be overthrown upon the facts disclosed on this record. Every constitutional aspect of the statute is so fully covered by the decisions above cited that further discussion would be superfluous.

Exceptions overruled.



THE PREVENTION OF INDUSTRIAL DISEASES.

THE Massachusetts State Board of Labor and Industries has recently sent to every practising physician in this Commonwealth the following circular letter calling attention to the regulation relative to industrial diseases:—

Boston, June 19, 1915.

Dear Doctor:

Your attention is respectfully called to the following regulation relative to industrial diseases in Massachusetts:—

Under authority of Section 6 of Chapter 813 of the Acts of 1913 the Joint State Board of Labor and Industries and Industrial Accident Board hereby requires that every physician treating a patient whom he believes to be suffering from poisoning from lead, brass, phosphorus, arsenic or mercury or their compounds, or wood alcohol, or from anthrax, or from compressed air illness, report within 48 hours to the State

Board of Labor and Industries, the information relating thereto called for by the reporting blanks issued by the said Board. Every such physician is hereby requested to make reports on the said blanks to the State Board of Labor and Industries of any patient whom he treats that is suffering from any other ailment or disease which the physician believes to have been contracted as a result of the nature, circumstances or conditions of the patient's employment. (Adopted Jan. 23, 1914.)

The Board believes that the first essential in the campaign against occupational diseases in this state is to secure definite data as to the number and the location of these diseases. The great, unnecessary wastage of human life and health occurring each year because of conditions directly or indirectly associated with occupational life is familiar to every physician. He sees daily in the consulting room, in the home and in the hospital, person after person whose working efficiency has been lessened or destroyed by accident or by unhygienic surroundings associated with many lines of employment. Nevertheless, when we try to analyze the various occupational diseases or ailments caused by or associated with specific employments by reason of the nature, circumstances or conditions of that employment, few or no reliable data upon which to build a conclusion are available. Without such a basis, little or no progress can be made in combating even the more prevalent of the occupational diseases. The medical profession alone can furnish the necessary facts for the basis of this most important branch of preventive medicine.

The State Board of Labor and Industries invites your coöperation and assistance in a study of the prevalence of occupational diseases in Massachusetts. To that end you are requested to fill out the enclosed data blank and return the same to this office at your earliest convenience.

All data and information furnished by you are to be considered *confidential* and if used publicly by this department will be free from any mark of identification.

Relying on your aid and coöperation in this most important survey, I have the honor to be,

Very truly yours,

THOMAS F. HARRINGTON, M.D.,

Medical Deputy Commissioner.

With the above communication was sent also a copy of the following circular letter which had been previously issued to the public press concerning the organization of an industrial hygiene corps.

Boston, June 15, 1915.

The State Board of Labor and Industries has inaugurated a state-wide organization of wage-earners into an industrial hygiene corps for the

purpose of giving to persons injured or taken ill upon the premises in the various lines of industry, intelligent first aid attention and at the same time establishing a system of medical reports from the various industries of the state. This undertaking is undoubtedly one of the most comprehensive and far-reaching organizations for bettering the health and reducing illnesses among wage-earners ever undertaken in any state in the country.

There are in Massachusetts more than 600,000 wage-earners in the various industries. Accidents and illnesses in one degree or another are occurring continually in shops, factories and industrial establishments. Much of the seriousness of these cases depends upon the kind of attention given to the person at the time of the accident or at the onset of an illness. Very often life itself depends upon the cool, intelligent action of a fellow worker present at the time. It is not always practical to have a doctor or a nurse on the premises,—although very many of the industries of the state are now maintaining such professional supervision over their employees,—nevertheless it is possible and feasible to have in each establishment and in every department of the establishment one or more persons sufficiently instructed and trained to render safe first aid care until the arrival of the physician, or, in the case of sudden illness, to prevent a delay in sending for medical assistance whenever a doctor is necessary.

There are innumerable occasions of simple accidents and illnesses which can be cared for at the time by persons who have been specially instructed. Too often these simple conditions are neglected or improperly treated, and, as a result, serious illness, incapacity and loss of wages result. It is said that more than 4% of the population of Massachusetts is on the sick list all the time from illnesses which are preventable.

The persons appointed as hygiene assistants, instructors or supervisors will be adequately instructed not only to render suitable temporary surgical and medical aid, but likewise instructed in the early signs and symptoms of the common afflictions and illnesses. These various assistants will also be in the best possible position to give to the medical department of the State Board of Labor and Industries a regular report on the illness or accidents occurring in various lines of industrial life and the consequent loss of time resulting from such illness. These data are not available anywhere today and are most essential in the fight against occupational diseases and accidents now being undertaken by the State Board of Labor and Industries. The persons selected to act as industrial hygiene assistants will be graded according to the conditions existing in the various mercantile and industrial establishments. The number and rank of the persons so selected will depend upon the number and kind of wage-earners being protected. At the head of each division, however, there will be a physician or other specially trained person or

chief to whom the assistants will be responsible. These chiefs will be in close touch with the Medical Deputy Commissioner of Labor, Dr. Thomas F. Harrington.

The Legislature has given to the State Board of Labor and Industries the authority to require all industrial concerns to keep and maintain free of expense to the employees a medical and surgical chest, containing plasters, bandages, absorbent cotton, gauze and all other necessary medicines, instruments and appliances for the treatment of persons injured or taken ill upon the premises. Also to require that suitable accommodations shall be provided for the treatment of persons injured or taken ill upon the premises. Many places of employment are now equipped with such a medicine chest, and in many establishments a physician, nurse, social worker, foreman or forewoman has been placed in charge of the supervision of the health of the employees.

In addition to this corps of health supervisors, the Medical Department of the State Militia is instructing a large number of its officers and privates each year on problems of personal hygiene, exercise, rest, sanitation, etc. These men are chiefly employed in the manufacturing and mercantile establishments. Adjutant-General Cole and Surgeon-General Frank P. Williams of the State Militia have both endorsed this plan of health supervision and have promised their coöperation in fitting the lectures and demonstrations given in the Militia to conditions likely to be met in the various industries of the state. In many localities the surgeons of the Militia, in addition to the physicians associated with the many industrial and mercantile establishments, will be requested to act as chiefs of the various divisions of industrial hygiene assistants. Lectures and demonstrations of a practical nature will be given by these various medical authorities upon the various dangers of industrial life as well as upon the prevention of occupational diseases. All the instruction will be of such a practical nature that it can be carried out not only in the shops, factories and industries of the state, but also in the homes of the wage-earners. Mr. Edwin Mulready, Commissioner of Labor and Industries, believes that this will give to Massachusetts an organization for bettering the health conditions among its people far in excess of that possessed by any other state in the country.

These two communications represent the inauguration of an important attempt to further the cause of preventive medicine among the industrial classes of this state and it is earnestly to be hoped that members of the profession, by filling in and forwarding the blank report form accompanying the former letter, may evidence their intelligent appreciation of the significance of this movement and their willing desire to co-operate in making it successful and thereby contributing to the benefit which it may be expected to produce in the welfare of the community.

Correspondence.

PARIS LETTER.

THE FRENCH SOLDIER OF 1915.

(From Our Special Correspondent.)

PARIS, June 19, 1915.

Mr. Editor: At an ambulance that I visited the other day a soldier was brought into the operating room in a fearful state; his left foot had been shot off above the joint, he had a nasty wound of the abdomen, fortunately non-penetrating, and a piece of shell had entered at the top of one shoulder-blade, damaging the spinal column and passing out at an almost symmetrical point on the other. He was very pale from loss of blood and shock, and was painfully affected by the sight of the operating-room with its white-robed attendants and unaccustomed appliances; it is strange how little importance the French attach to details of this kind, as it would have been a perfectly simple matter to anesthetize this man outside in the ante-chamber. The surgeon said to him, speaking through his face-mask: "We are going to give you a little chloroform, mon ami, and put that wound on your shoulder in better order." The man seemed to grow paler still, and trembled somewhat; but, summoning what courage he had left after his manifold ordeals, he tried to smile, replied simply: "*Si vous voulez, Monsieur,*" and lay back on the table. His condition proved serious, a piece of shell, fragments of bone, and shreds of uniform were extracted from the wound, and his fate now rests in the hands of the gods. If the suppuration from this vast, jagged loss of substance gets into the spinal column, I suppose this gallant son of France will have to go; but if he escapes this danger his chances are good, as the vitality and recuperative power of these men apparently knows no limit. It would seem as though ten months of campaigning in the open had, after sifting out the physically unfit, so tuned up the constitution of the others that they have become as hardy as fox-terriers, animals whose phagoeytosis is equal to any terrestrial emergency.

From the one, know them all: this is the French soldier of today. The *morale* of these men is such that their leaders can ask *any* sacrifice from them; and when they fall in the effort, not a murmur escapes their lips. The will-power that enabled that man to summon a smile to his face and utter a formula of politeness as he faced what must certainly to him, and particularly in his grave condition, have seemed a *frightful* ordeal, however matter-of-fact it may have appeared to the operating-room staff, has drawn comment from everyone that has been brought into contact with the French wounded in the ambulances. A young American lady who helps at a base-ambulance in the Vosges told me that she had had to feed with a tube on a passing sanitary-train a young soldier who had been shot in the mouth and was suffering terribly from having to be transported with a shattered jaw. She probably did this with unusual tenderness and skill, for the man was so grateful that he felt called on to make a special effort to express his appreciation: so he summoned up what little he knew of English and uttered a sadly-indistinct "thank you." One of the surgeons on duty at a Paris terminus, where the sorting and distributing of the arriving wounded is carried out, also told me that he went up to a soldier whose condition did not look very brilliant, he having in fact a very bad shell-wound of the right shoulder-joint, and said to him: "*Eh bien, mon ami, comment vous trouvez-vous?*" But all the whining he obtained from that war-victim was: "*Ah, Monsieur, — ce que nous les avons cus!*" (What a doing we gave them.) That fellow was fresh from Notre Dame de Lorette!

The total absence of complaint, the unfailing courtesy, the consideration for each other, and the stoicism with which they accept their lot when hopelessly maimed, although young and with a long life before them of utter ruin,—for when the glamour of the war has worn off, and we all know how quickly that takes place, how unfortunate will not be the situation of these men?—are features that strike the observer with fresh force each time he comes in contact with a different agglomeration of these poor victims. As a surgeon said to me the other day while going along the beds of a ward of forty *grands blessés*, not one of them, even a man that was to pass away that same night, showing signs of discouragement or rebellion against Fate: "With men in *that* frame of mind, anything is possible." Just one little instance. A shell lit in a French trench, blowing the men and the defences every which-way; finally one *trouper* came to his senses, picked himself up, and shouting "*debout, les morts!*" ("Up with you, you dead beggars!") set to work to rouse others, dig out those buried under *debris*, and place the slightly wounded in such positions that they could be of help, until he had enough combatants to organize a semblance of defence that enabled him to hold the trench until other troops could get to their rescue.

In fact,—it is a remark made by everyone today that no one seems to know where the present Frenchman came from! The men of my generation, who remember the war of 1870, will also remember the Frenchman of that time; and those who were well-acquainted with the state of affairs here only a year ago, culminating in the disgraceful exhibition of the Caillaux trial on the very eve of this fearful struggle, will also remember that they would not have given a very high purchase-figure for the French moral character at that moment. What, then, has occurred to conjure up the splendid type of manhood that can be seen in any bed in any French ambulance at the present time? Simply this, the alternative of their life or death as a nation. They saw in a moment that *this* time it meant their very existence,—not provinces, or indemnities. At a grave crisis in the history of England one of her celebrated statesmen made use in the House of Commons of words to this effect: "The Angel of Death is abroad in the land"; and, after a long pause, in the solemn stillness he added, "we almost seem to hear the beating of her wings." The same thing occurred in France last August,—the French heard (plainly this time) the beating of the wings of the Angel of Destruction, and in a moment they were changed men; all their frivolity, scandal-mongering, political bickering and general invertebrate condition of *je m'en fiche-isme*, vanished into thin air, and in their place emerged the men who have done what the French have done this winter. In the fiery crucible of this the greatest peril of their existence as a nation the dull and unattractive ore has flowed forth as pure and shining metal; nor has the transformation been confined to the men alone, for the women are doing their part equally nobly. In one of the ambulances I visit there is a lady of means who cannot be much this side of sixty, and who moving about incessantly superintending the rooms in which the soldiers' wounds are dressed, lending a helping hand in a thousand different ways. How many young ladies are there who, without previous training, could go straight to such arduous duties as that from the listlessness of social life?

Of the many peoples that are engaged in this Armageddon several have gained undying fame; Serbia did well, and would have done better had she not been stricken to the ground by a pandemic. Belgium did well,—uncommonly well; about this there is no doubt possible. But still,—after making every reserve in favor of these two countries, and admitting that for a small and peace-loving people like the Belgians to stand up against, and bear alone the brunt of, the first onslaught of the greatest military power ever

known, courage and moral fortitude of the very highest order were required.—I think that history will ultimately agree that the greatest surprise in the present struggle has been this wonderful change in the character of the French people, and the unsuspected virtues that have been brought into evidence among them during this terrible emergency.

“S.”

18.—I am happy to be able to report that two weeks later the patient mentioned at the beginning of this letter was doing as well as could possibly be expected.

OXFORD AND CAMBRIDGE IN WAR TIME.

From Our Special Correspondent.)

MERTON COLLEGE,

OXFORD, ENGLAND, June 24, 1915.

Mr. Editor: No places in England show the effects of the war more than the two university towns, Oxford and Cambridge. Both have become training camps as they were in the times of the wars with France. Khaki is to be seen everywhere. One hears buzzes from the meadows in the evening and in the morning is wakened by the tramp of marching feet and a song rising from hundreds of throats.

The enrollment of each university has been reduced to less than one-third the usual number. The students seen going about are for the most part Americans and Indians.

Most of the colleges in both universities have turned over a number of rooms to be used as officers' quarters, while in the college gardens one may often see ladies serving tea to the convalescent Tommies.

The First Division Base Hospital in Cambridge is one of the largest and most efficient in England, accommodating about 1200 wounded. It has been built completely since the war began and is composed of long one-story huts whose walls are made of some heavy paper-like preparation. The colonel in charge requested me not to publish a description of the hospital, so I must refrain from further details.

At Oxford the "examination schools," where at this time last year the university was conducting examinations, now has nearly four hundred wounded. It is called the base hospital. Across the street the Masonic Temple holds about sixty soldiers, while behind the temple an entrance leads into the beautiful gardens of New College. Here several pavilion tents have been pitched and one can see the nurses in their blue uniforms moving in and out among the beds. In the same way the Town Hall has been filled with beds.

At Easter time Major Whitelock was given Sommerville, a girls' college, and told to turn it into a hospital. The girls were moved out of their beautiful home and placed in one of the colleges of the university, Oriel. Sommerville is now a well organized hospital. More serious cases are placed in the larger wards in the ladies' former dining hall and assembly rooms. For others, three beds are placed in each large bedroom. Dressing tables serve excellently to hold flowers and medicines. The rooms are bright and cheery. Even the gassed patients express themselves as pleased with their surroundings. With a staff of four assisting physicians Major Whitelock is now attending to four hundred cases there.

I overheard the following conversation at Sommerville this morning. It was between a young sailor home on leave and a wounded army sergeant. "How have you been getting on in the navy?" "Oh it's a beastly bore waiting around for something to happen sea. But how are you?" For a little while the soldier did not respond, then he said, "I'll have a couple of 'oles in my arm but that's coming on fine. It's the bloody gas that bothers me. Hi don't feel as though I'd ever be fit again." The sailor replied, "This submarine is nothing to the bloomin' gas!"

Sincerely yours,

WENDELL G. PENFIELD.

THE DIFFERENTIATION OF BODY TYPES.

SEATTLE, WASH., July 6, 1915.

Mr. Editor: Two recent observations in regard to the herbivorous and carnivorous types of man present an interesting parallel.

In your editorial in the issue of March 4, 1915, appears this paragraph, "Probably the carnivorous type is really the superior, though it encounters peculiar perils in maintaining that superiority, and as a matter of fact it appears, certainly in the majority of American communities, that the carnivorous type predominates. This is evidenced by the rapid evolution, in the second and third generations, of carnivorous types out of immigrants of herbivorous type from European countries."

In an article entitled "Diagnosis of the Englishman" by John Galsworthy in the *North American Review* for May, 1915, is this statement: "Racially the Englishman is so complex and so odd a blend that no one can say what he is. In character he is just as complex. Physically there are two main types: one inclining to length of limb, narrowness of face and head (you will see nowhere such long and narrow heads as in our islands), and bony jaws; the other approximating more to the ordinary 'John Bull'. The first type is gaining on the second."

Very truly yours,

FRED J. FASSETT, M.D.

THE BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JULY 10, 1915.

CONTRIBUTIONS.

S. E. B., Pittsburgh, Pa.	\$ 50.00
Dr. George B. Broad, Syracuse, N. Y.	10.00
Dr. Winfred Wilson, Memphis, Texas.....	11.50
Delta County Med. Soc., Escanaba, Mich.	10.00

Receipts for the week ending July 10.....\$ 81.50
Previously reported receipts..... 754.34

Total receipts.....\$7625.84
Previously reported disbursements:
1225 standard boxes of food @ \$2.20.\$3575.00
1274 standard boxes of food @ \$2.30.2930.20
353 standard boxes of food @ \$2.28.804.84

Total disbursements.....\$7310.04

Balance\$315.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

APPOINTMENT.

Dr. W. F. R. Phillips of the University of Alabama has been appointed professor of anatomy at the Medical College of South Carolina.

RECENT DEATH.

DR. JAMES A. BENNETT, who died recently in New York City, was born at Sterling, N. Y. He received the degree of M.D. from the New York Homeopathic College in 1871, but after practising his profession for a short time, relinquished it for an active and successful business career. He was the senior living member of the American Institute of Homeopathy and a member of the New York County Homeopathic Society. He is survived by his widow, two daughters and two sons.

The Boston Medical and Surgical Journal

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ANNUAL MEETING OF THE SOCIETY.	
JUNE 9, 1915. PAPERS ON PUBLIC HEALTH AND PREVENTIVE MED- CINE.*	

(Each speaker being limited to ten minutes.)

I.

THE WORK AND AIMS OF THE STATE DEPART- MENT OF HEALTH.†	
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BY ALLAN J. MC LAUGHLIN, M.D., BOSTON.

PREVENTIVE medicine or the scientific prevention of disease is comparatively new. In the days before Pasteur and Koch revolutionized our ideas of the causation of disease, health officers were fighting in the dark, by shotgun methods, against unknown terrors. Every disease and every plague was a mystery in its causation and methods of transmission.

After the establishment of the germ theory on a sound basis, laboratory and research workers all over the world began to work out the problems of the various diseases. In order to fight these epidemic diseases intelligently it was necessary to know the cause and how they were transmitted from person to person. In the past thirty-five years the causes of nearly all the so-

* A paper on Cancer by Dr. Edward Reynolds, Boston, will be found in the Cancer Number of the Boston MEDICAL AND SURGICAL JOURNAL, July 15, 1915.

† Read before The Massachusetts Medical Society, June 9, 1915.

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called contagious diseases have been discovered and we have learned how to destroy these germs and prevent the spread of the disease.

We know now that tuberculosis of the lungs is caused by the tubercle bacillus, and that if we could control the sputum of consumptives, the disease would disappear from our statistics.

We know that typhoid fever is due to taking into our mouths with food or drink the typhoid bacillus. In other words, we do not eat typhoid; we eat it.

We know that yellow fever and malaria are caused by parasites which can only be transferred from patient to patient by means of a certain kind of mosquito.

We know that bubonic plague is not transferred from man to man, but is a rat disease, and man receives his infection through the medium of the rat fleas.

We know that Asiatic cholera is caused by a germ (because of its shape called the comma bacillus) which is transmitted in the same way as typhoid fever, that is, by means of food and drink.

We know that typhus fever, which is responsible for such frightful ravages in Serbia, is transmitted from person to person by means of the louse, and in no other way. We not only know the cause of disease, but we also know in nearly all cases how these diseases spread. We know that tuberculosis, diphtheria, scarlet fever, measles, pneumonia, whooping cough, influenza, and common colds are spread through discharges from the mouth and nose. We know that if we can keep all traces of intestinal discharges out of our food and drink, we will have no Asiatic

cholera, no typhoid fever, no dysentery, and no hookworm disease. We know that vaccination prevents smallpox; that the Pasteur treatment prevents rabies; that inoculations with special prophylactics will protect against cholera, typhoid and plague. We know that diphtheria antitoxin will not only cure diphtheria, but it will also prevent it.

It is evident that what we need is not more knowledge of causation and modes of spread of epidemic diseases, but a more general application of the knowledge we already possess. With this knowledge of how to prevent epidemic disease, why is it that these diseases are still responsible for thousands of deaths each year? Simply because this knowledge cannot be applied without the cooperation of the layman with the health authorities. The attitude of the average layman toward the health department is one of indifference—he feels that some one is paid a salary for safeguarding the public health, and that the citizen has no obligation or concern in the matter. He does not know that the most competent health officer is powerless to reduce disease beyond a certain point without his help.

It is commonly stated that public health is purchasable and this is true, but it is only fair to explain how the purchase must be effected. We health officers speak of preventable diseases, and often neglect to state how, and to what degree, they are preventable. Expert, competent health officers, adequately paid, ample health appropriations, and strong laws will not suffice to eradicate disease unless backed by intelligent public opinion and by the hearty cooperation of the individual citizen. Public health is purchasable, but a large part of the purchase money must be expended in teaching the layman how he may prevent disease by personal hygiene. He must be made to feel that he is an integral part of the health organization, and that his cooperation is necessary to prevent sickness and death among his neighbor. Preventable diseases may be reduced by official action, but can never be entirely eradicated without the support of the layman. An ideal State Health Department should consist of not only the officials on its payroll, but should include all physicians and nurses and every intelligent layman in the State. This ideal may seem far from attainment, but the only way in which it can be accomplished is by means of popular education.

Let us consider what are the big factors in our general death rate and in what way you may help in their reduction. There were over 50,000 deaths in Massachusetts in 1913. About 70% of these, or more than 35,000, were due to the following causes:—

Infant mortality	10,086
Pneumonia	6,124
Organic heart disease	5,402
Tuberculosis	5,402
Cancer	3,526
Apoplexy	3,451

Bright's disease	2,888
Syphilis	?
Diphtheria	628
Measles	315
Scarlet fever	293
Typhoid	280
Whooping cough	239
Influenza	204

These great factors in our problem: infant mortality, pneumonia, organic heart disease, tuberculosis, cancer and the so-called degenerative diseases, cannot be greatly reduced by laws and ordinances, or other purely official activity, and significant reductions in the same can only be effected by the spread of the gospel of right living and personal hygiene through the medium of popular education.

The possibilities in preventive medicine of medical inspection of school children are not being realized as fully or as rapidly as is desirable. There is a lack of a central directing authority competent to ensure uniformity of methods and coördination of effort along the lines of prevention, rather than the detection of disease. Our greatest hope for ultimate success in the suppression of tuberculosis must lie in the prevention of the development of tuberculosis in the child with a pre-disposition for, or latent infection with, tuberculosis. There is also great need for instruction in the diagnosis of tuberculosis before processes in the lungs are present. Teaching of diagnosis in most medical schools is limited to the demonstration of the tubercle bacilli in the sputum and the physical signs in the lungs of well advanced cases. With the development of our system of inspection of school children to its full hygienic possibility, there will be a great need of examining physicians skilled in the newer methods of technic able to make diagnosis with reasonable certainty in the very early stages.

I believe that the time has arrived for a state-wide organization of all those interested in public health education. I believe that such an organization should include all health officers and every agency engaged in public health nursing or social service, or the teaching of hygiene in this Commonwealth. Organization is necessary to secure coöperation, to prevent duplication, and to get the full value of the efforts made and the money expended for public health education. It matters little which disease or problem we may be considering, after the health officials have eliminated all the factors which are corrigible by official action, there always remains a group of factors which can only be eliminated by the enlightened coöperation of the individual families or of the individual members of those families.

Health officers are justified in being proud of the achievements in the prevention of disease and the reduction of the death rates which are recorded in recent years, due largely to official activity. We have now reached a point, however, where further progress demands the hearty

support of the individual citizen, and a wider application of the principles of personal hygiene by the individual citizen himself. This means education of the people in their obligations to their neighbors, and in the simple gospel of disease prevention. We have enlisted in this campaign the practising physician as an educator in preventive medicine, and I am confident we may count on his earnest effort and loyal support. There are the great thousands, however, who never or rarely call a physician, and who furnish the bulk of infant and tuberculosis mortality.

I am sure that all practical health officers have found that the greatest defect in the average health organization has been the lack of a medium for carrying effective sanitary instruction into the home. To reach these people, two very effective agencies are in our hands, and great results may be obtained if these agencies are properly directed, so that uniformity of procedure and coördination of effort can be secured under a central authority. I refer to the possibilities of public health or visiting nursing and to the hygiene of school children.

In view of the great reductions already effected in the mortality rates for tuberculosis, typhoid fever, diphtheria, and other diseases, largely due to official activity, it may be said in Massachusetts that further reductions will be in direct ratio to the number of women employed in public health nursing. The successful visiting nurse requires, besides a knowledge of the prevention of disease, tact, patience, and kindly solicitude for the welfare of the poor. Compare the results possible in life saving by the work of such a woman, with the results obtained from the work of the male sanitary inspector, at the same or even at a larger salary.

II.

LOBAR PNEUMONIA.*

BY FREDERICK T. LORD, M.D., BOSTON.

IT is fitting that lobar pneumonia should head the list of the special subjects under consideration today, since its victims comprise about ten per cent. of the total mortality. The persistently high death rate from pneumonia, in comparison with the encouraging decline in many other of the acute infections, indicates that in spite of our increasing knowledge of the disease the factors of importance in diminishing its spread are not as yet understood or are improperly applied. To avoid the error of failure of application of already existing knowledge to the problem from the point of view of public health it is desirable to consider those features which seem of most importance in this connection.

The influence of the seasons has long been recognized as a most important predisposing factor in pneumonia. The "pneumonia season"

embraces the colder months of the year, and it is worthy of note that this increased incidence of pneumonia at this time coincides with the period of greatest prevalence of all the acute respiratory infections and of exacerbations of the chronic infections. The reasons for this are not wholly clear, but a greater amount of dust, less abundant sunshine and the tendency to live under less satisfactory hygienic conditions, in more crowded and less well ventilated rooms at this season are probably of importance.

Pneumonia is usually regarded as an endemic disease, each case having little apparent connection with other cases. Direct contagion of pneumonia from one person to another cannot often be established. The occurrence of instances of more or less severe local outbreaks are, however, sufficiently common to indicate a mildly epidemic character, which most often become manifest among persons housed in overcrowded quarters as on ship-board, in barracks and in jails. Dispersion of those living in such close quarters may be followed by a diminished incidence of the disease. The infrequency of apparent contagion from one pneumonia patient to another cannot be safely relied upon as an assurance against the communicable nature of the pneumococcus infection upon which the disease depends.

The biology of the pneumococcus is such as to indicate that it cannot long maintain its existence outside the body. It grows only at body temperature and its viability under artificial conditions is short. Like the tubercle bacillus and certain other pathogenic organisms, it can maintain its existence only by passage from person to person. Contagion must then be the manner of spread, and it is only necessary to assume that healthy carriers of pneumococci intervene between one patient with pneumonia and another to understand how transference from person to person may occur.

An interesting and important feature of pneumonia is the frequency with which it is preceded by an acute respiratory infection. Inquiry of patients with pneumonia elicits the history of an acute upper tract infection, commonly ascribed to a "cold," an attack of so-called influenza, or a bronchitis in about fifteen per cent. of the cases, thus suggesting the importance of acute respiratory infection as a predisposing factor.

An important advance in the study of pneumonia has been made in Germany and in this country at the Hospital of the Rockefeller Institute for Medical Research¹ in distinguishing certain types of pneumococci as the infecting agents in the disease. Time does not permit a consideration of the manner in which the strains are differentiated. It is enough to say that there appear to be four types of pneumococci concerned in lobar pneumonia. Types I and II of the Rockefeller classification can be recognized by their agglutinative and immunologic reactions. Type III is distinguished by cultural and pathogenic properties. Type IV is a heterogen-

* Read before The Massachusetts Medical Society, June 9, 1915.

ous group without distinctive agglutinative or immunologic reactions. Of 145 cases of lobar pneumonia at the Rockefeller Hospital observed during 1912-13 and 1913-14,² organisms belonging to Types I, II and III were found in about 80% of the cases, Type IV comprising the remaining 20%. It is to be noted that the different strains show no tendency to change from one type to another under artificial conditions. The identification of these fixed strains is an important advance in the study of pneumonia, and at once affords a more exact comparison of types of pneumococci normally present in the mouth of healthy individuals with those concerned in the etiology of lobar pneumonia.

It has long been recognized that normal persons are carriers of pneumococci in about 50% of the cases. The pneumococci so commonly found in the mouths of healthy individuals, however, differ from the fixed strains most prevalent in lobar pneumonia. Whereas at the Rockefeller Institute about 80% of the pneumonia cases showed the presence of types of pneumococci which could be identified as belonging to groups I, II or III, in a study of 15 strains obtained from the saliva of normal persons not exposed to pneumonia, no organisms belonging to these same types could be found. In a study of 5 strains of pneumococci obtained from similar sources at the Massachusetts General Hospital³ no fixed strains were found. In an attempt to identify the types of pneumococci which occur in the saliva of persons in more or less intimate contact with patients with pneumonia I have investigated 25 persons closely associated as members of the family or nurses. Of this number the attempt to isolate pneumococci was successful in 11 cases, but in none of these did the pneumococci fall into groups I, II or III. In two instances I found organisms which agglutinated with Type I anti-pneumococcal serum, but the morphologic and cultural peculiarities of these two strains indicated that they were not to be regarded as pneumococci. In the remaining 12 cases the attempt to isolate pneumococci failed. Doechez and Avery,⁴ on the contrary, succeeded in isolating typical groups of pneumococci in a number of instances from the mouth sputum of healthy individuals intimately in contact with cases of lobar pneumonia, and in these cases the type always corresponded to that with which the case of pneumonia was infected.

It should be said concerning these observations that they are as yet too few for safe conclusions. They suggest, however, that the strains of pneumococci normally inhabiting the mouth in healthy individuals are less concerned in the etiology of pneumonia than has heretofore been believed. Pulmonary infection with pneumococci resulting in lobar pneumonia has usually been ascribed to increased virulence of mouth organisms or diminished resistance of the host, but now seems more likely to be due to contact with pneumonia patients or healthy carriers of fixed strains of pneumococci. It is probable that

the infective agent in pneumonia is more nearly restricted to the neighborhood of the patient with pneumonia than has been previously thought. In this respect pneumonia may be not unlike epidemic cerebrospinal meningitis, in which healthy carriers of Weichselbaum's meningococcus probably serve to spread the infection.

Measures directed toward the prevention of lobar pneumonia should take into consideration its seasonal incidence at a period when other acute respiratory infections are prevalent and the probable importance of such infections as a factor in the spread of disease producing types of pneumococci. The apparent mildness of its epidemic character should not be allowed to lead to any relaxation of vigilance to prevent transference of pneumococci from person to person. In consideration of the development of pneumococci only at body temperature and their short viability outside the body, contagion must be regarded as the method of spread. The recognition of certain fixed types of pneumococci as the most common cause of lobar pneumonia and the failure to find these same strains in normal persons other than those in intimate contact with pneumonia patients makes it probable that the infecting agent in pneumonia has a more restricted distribution than has been previously thought. More careful control of infected persons may, therefore, be expected to diminish the prevalence of the disease.

The protective value of inoculations with the pneumococcus in preventing subsequent infection of animals with otherwise lethal doses of the organism suggests the possibility of vaccination in man for the prevention of pneumonia. Whether this can be accomplished cannot yet be regarded as settled, but the method deserves an extended trial when in any community pneumonia is unusually prevalent. The experience among the miners on the Rand at the Premier Mine is promising. In 1912, among 17,009 inoculated, the death rate from pneumonia was 6.89 per thousand, while among 6,700 controls the death rate was 17.72 per thousand. It would be desirable in the face of an epidemic to use as a vaccine the strain of organisms giving rise to the infection.

The following recommendations briefly outline the measures which may be expected to diminish the incidence of pneumonia:—

1. Education of the public concerning the manner in which respiratory infections take place and the means of avoiding them.

2. Closer supervision of the acute respiratory infections, such as ordinary "colds," so-called influenza, bronchitis and sore throats, and isolation of the more severe types of these simpler infections when possible.

3. Closer supervision of patients with pneumonia by: (a) making pneumonia a reportable disease, (b) isolation of patients with pneumonia.

4. Avoidance of overcrowding and the regulation of housing conditions.
5. The diminution of dust in cities.
6. Immunization of those exposed in times of epidemics.

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¹ Dochez and Gillespie: *Jour. Am. Med. Asso.*, Sept. 6, 1913.

² Dochez and Avery: *Jour. Expt. Med.*, Feb. 1, 1915.

³ I am indebted to Dr. Ruth Cole, Director of the Hospital of the Rockefeller Institute for Medical Research for the antipneumococcal serum with which the tests were made.

⁴ Dochez and Avery: *Jour. Expt. Med.*, Feb. 1, 1915.

III.

INFANT MORTALITY.*

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON.

It is impossible in the few minutes at my disposal to give more than the briefest summary of the main points regarding the importance, causation and prevention of infant mortality. The importance of the subject is shown by the fact that, according to the census of 1910, approximately 265,000 babies in the first and 53,000 in the second year of life died in the United States in 1910, making a total of 318,000. It is hardly necessary to advance other figures. The seriousness of the subject is emphasized, however, when it is realized that a baby comes into the world with less chance to live a week than an old man of ninety, and less chance to live a year than a man of eighty.

The causes of death are shown approximately in the accompanying table:

CAUSES OF DEATH.

Prematurity, congenital debility, congenital defects and accidents of birth.....	25%
Acute gastro-intestinal diseases 25% }.....	40%
Diseases of nutrition..... 15% }	35%
Acute respiratory diseases.....	20%
Acute infectious diseases.....	3%
Tuberculosis.....	2%
Syphilis.....	1%
Unclassified.....	9%

It is evident from this table where the work must be done to diminish the present terrible rate of infant mortality.

It seems a self-evident fact that the etiology of a condition must be understood before measures can be taken intelligently for its prevention. This fact often seems to be forgotten, however, in the campaign against infant mortality. Prematurity and congenital debility are, for example, due chiefly to alcoholism or disease in the parents and to overwork and under-nutrition of the mother. The measures to be taken to remedy these conditions are obvious, but far-reaching. Among them are the abolition of alcoholism, the prevention and notification of venereal diseases, the regulation of the employment of pregnant women, the provision of proper food for pregnant women, prenatal care by public nurses and by prenatal clinics, and the provision of suitable hospitals for the

care of premature infants. Most of the injuries at birth are avoidable, and are the result of the neglect or incompetency of physicians and midwives. The remedies are the better education of physicians, the abolition or proper regulation of midwives and the establishment of free municipal clinics for the care of poor women in labor.

The diseases of nutrition and the acute gastro-intestinal diseases are due primarily to bad feeding. In general, 85% of all infantile deaths are in the bottle-fed and 90% of the deaths from the diarrheal diseases are in the bottle-fed. The remedy is again obvious. Women must be taught to nurse their babies and measures taken to enable them to do so. Public aid must provide for the mothers so that they do not have to wean their babies to go to work. They must be fed and helped. This can only be done when there is compulsory birth notification, which is enforced.

The bottle-fed babies die because they are badly fed. They are badly fed because of the ignorance of mothers and doctors, the inability of the poor to get good milk and their inability to take care of it, if they get it. The remedies are again obvious. They are the better education of physicians in the matter of infant feeding, the education of the poor and ignorant classes by district nurses, milk stations and "consultations," the improvement of the milk supply in general, the provision of clean milk for babies by public and private charities and the provision of free ice in the summer.

Other causes of the acute diarrheal diseases are excessive heat, overcrowding, unhygienic surroundings and flies. The remedies are again obvious. Among them are the improvement of the living conditions of the poor, the provision of parks, piers and playgrounds and the suppression of flies.

The causes of the acute respiratory diseases are overcrowding, bad ventilation and debility from improper feeding. The remedies for these conditions have already been mentioned.

The other causes of infant mortality are relatively so unimportant that it is hardly worth while to take them up, except to say that tuberculosis in infancy is due either to direct contagion or to the milk from tuberculous cows. The remedies are again obvious. The babies of tuberculous parents must be separated from them. The public must be still further educated to the danger of the infection of infants by adults suffering from open tuberculosis. The sale of milk from tuberculous cows must be prohibited or, if this is not possible, all milk must be pasteurized.

It is evident from what has been said that the fundamental causes of infant mortality are poverty, ignorance and immorality. Poverty, ignorance and immorality are always with us and are unfortunately widespread. It is evident, therefore, that the problem of the diminution of the infant mortality is a very broad and com-

plex one. It is no simple matter to correct the morals of the public, to educate the ignorant and to relieve poverty. Much has been and is being done, however, to diminish the infant mortality and the results of this work are already evident in a decreasing death-rate, especially in our large cities. Much more must be done, nevertheless, than is now being done. To do it means the expenditure of much energy and money, especially of money. The money spent will, however, be well invested, because of the increase in the productive power of the community as the result of the number of lives saved. The campaign is too large a one to be properly carried out by private charity. It must, therefore, be undertaken and conducted by the public authorities, national, state and municipal.

IV.

THE CONTROL OF TYPHOID FEVER.*

BY MARK W. RICHARDSON, M.D., BOSTON.

TYPHOID fever is with us because typhoid bacilli get into our food and drink. Typhoid bacilli get into our food and drink because the stools, urines, or sputum of persons harboring typhoid bacilli are inadequately controlled. Not all persons, however, who ingest the typhoid bacilli contract typhoid fever. They are either naturally immune or have, through typhoid infection or through artificial inoculation, acquired specific immunity. The problem resolves itself, therefore, into two parts: First, a more strict control of typhoid excretions; and, secondly, an increase in the resistance of the community through typhoid inoculation.

TYPHOID INOCULATION.

The value of this procedure has been demonstrated beyond a doubt through military experience and the results obtained in training schools for nurses. The immunity acquired is not absolute in all cases. It persists for three years and probably longer. The inconvenience suffered by the individual is small. The necessary material is furnished free of charge by the State Department of Health. The practice should become universal because it will be long before typhoid excreta can be eliminated from our water and food supplies.

CONTROL OF WATER SUPPLIES.

The character of the water supplies in Massachusetts has improved enormously in the last forty or fifty years, and to this improvement, no doubt, is due the fact that the typhoid death rate in this state, which in 1870 was approximately 80 per 100,000 of the population, is now but 8 per 100,000. This improvement, however, is confined largely to the urban water supplies.

The water supplies of the farms, exposed as they are frequently to contamination from defective privies and barnyards, continue to be responsible for much typhoid fever, especially of the vacation type.

There should be undoubtedly much more close supervision over the country well, not only from the point of view of the inhabitants of the rural localities, but also from that of the summer visitor.

CONTROL OF FOOD-HANDLERS.

Another very important factor in the control of typhoid fever lies in an increasingly strict supervision of food-handlers. The dangers incident to an unclean cook have been well exemplified in the experience of the New York Health Department with Typhoid Mary. It is apparent, however, that efficient control can be obtained only after long years of effort and mainly along educational lines, for it is manifestly impossible to determine, even by frequent bacteriological examinations, all the individuals who may be excreting typhoid bacilli. An important beginning, however, can be made if Health Departments will undertake the examination and education of all typhoid convalescents. Urinary carriers of the convalescent type are practically constant and easily discovered. Fecal carriers are, unfortunately, intermittent and not so easily discovered. In my opinion, however, the urinary carriers are much more dangerous. All typhoid convalescents, and especially those having to do with food products, should be made the subject of special educational effort, for with knowledge and care these individual carriers can reduce their dangerous potentialities to a minimum.

It has been my fortune to examine many cooks, to see many hotel and club kitchens, to see the lavatories used by these cooks, and their methods of furnishing specimens of urine and, to me, the wonder is that we do not have more typhoid than we do.

There is on foot a strong movement looking to the periodic examination of food-handlers in order to further the elimination of communicable disease. Such examinations, if supplemented properly by educational work would undoubtedly have an important effect upon the transfer of infection through food products. The necessity for an adequate inspection of milk, its production and distribution, seems to me to lie largely in the elimination from the industry of those who are sick or have been sick with a communicable disease, through the proper care of excreta of such individuals.

The house fly and his relation to diarrheal diseases has been abundantly exploited. I believe that this exploitation has been somewhat overdone, but would, nevertheless, urge a continued active campaign against this common nuisance.

* Read before The Massachusetts Medical Society, June 9, 1915.

THE TYPHOID PATIENT.

All cases of undetermined continued fever should be reported immediately to the local board of health as possible cases of typhoid fever. In no other way can health departments take early and effective steps to control epidemics.

To clear up the diagnosis, the physician must then use all the aids furnished by city and state authorities, such as Widal outfitts and bile outfitts for the cultivation of the typhoid bacilli from blood, stools, urine, or sputum. All doubtful cases should be subjected to typhoid precautions. Typhoid patients are best treated in hospitals. In any event, those who care for patients should not also be concerned with food supplies.

All excretions should be treated with disinfectants, the best of which is heat as employed in steam-jacketed hoppers used in large hospitals or as generated through the decomposition of calcium oxide in the method of Linenthal and Jones. Chemical disinfection is best carried out by thorough mixing of the excreta with carbolic acid 5%, formalin 10%, milk of lime or chlorinated lime 6%. Disinfection should, furthermore, be extended to bath water, inasmuch as this can easily be contaminated with stools or urine. Internal disinfection through the use of hexamethylamine should be carried out in every case, five or ten grains of the drug being given three times daily throughout the disease. This drug has no effect probably upon the presence of the typhoid bacilli in the stools although it is excreted in the bile. As a urinary disinfectant, however, it is very effective and eliminates undoubtedly many of the urinary carriers. Incidentally, I believe it prevents the occurrence of intercurrent cystitis, orchitis, and epididymitis.

The typhoid bacilli are present but rarely, I believe, in the sputum. I have seen them but once and then during a complicating pneumonia. This undoubted occurrence, though uncommon, necessitates, however, the routine disinfection of all sputum. It requires, furthermore, that each typhoid patient should have his own dishes and other apparatus, and that they should be subjected to rigid supervision. The disinfection of typhoid excreta from a city point of view is required from another standpoint, in that many of our shell fish are grown or fattened in sewage-polluted waters. Such polluted waters, furthermore, are oftentimes used by the public for bathing purposes.

DISINFECTION OF PREMISES.

After the death or convalescence of a patient, the room or rooms in which the patient has been kept must be the subject of careful treatment. Gaseous disinfection of the premises, however, is neither necessary or advisable. Sufficient will be done if the rooms are treated with a maximum of fresh air and sunshine with the abundant application of soap and water and the maximum utilization of fire, steam, boiling water

and some chemical disinfectant, such as carbolic acid 5%.

Finally, perhaps the most important factor in the whole problem is that of unclean hands. We have seen that the typhoid carrier, through uncleanly habits, infects oftentimes the food supplies. Of similar importance are the unclean habits of the general population, which as a rule takes no care to wash the hands before partaking of food.

When we consider how many typhoid carriers are at large, how frequently they must contaminate objects of common contact, such as door-knobs, hand rails, etc., it cannot but be that the indirect transfer of infectious material to the hands of the general population is frequent.

Indeed, I believe that our most effective slogan for the immediate future must be *wash your hands before handling food, whether it be for yourself or for other people's use.*

v.

PREVENTABLE HEART DISEASE.*

BY ROGER I. LEE, M.D., CAMBRIDGE, MASS.

THE discussion of preventable heart disease is inevitably the discussion of the etiology of heart disease. Dr. Richard C. Cabot¹ in an analysis of six hundred successive and unselected cases of heart disease found that he could group 93% of the 600 cases under four etiological headings. These headings were: (1) Rheumatic, that is, presumably streptococcic, (2) Syphilitic, (3) Arteriosclerotic, (4) Nephritis. The largest group was the rheumatic or streptococcic, which includes 278 cases, or a little over 46%. The next largest group was the nephritic group, 19%; the arteriosclerotic was 15%; the syphilitic 12%. It is evident that the so-called "rheumatic," that is the streptococcic or infections group, is the important group. It embraces nearly half of the cases. Streptococcic heart disease has its origin in a large majority of cases (in 60% of Cabot's series) before the 22nd year. It begins young; it is essentially a chronic disease and if severe or progressive it handicaps those afflicted during the prime of life, and often kills before maturity. The prognosis of severe chronic endocarditis in childhood is notoriously grave. Surely it would seem that since it is possible by repeated adequate medical inspection to control the health of school children, it ought to be possible to eliminate much of this group and to minimize the after-effects of early slight cardiae lesions. Even on economic grounds a considerable number of people should not start their working years with a handicap which can never be removed, but which tends to increase.

During the past year opportunity presented to examine the entire freshman class of Harvard College. This group represented 662 young

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male adults of an average age of 18. The individuals were not selected but the group may be considered to be selected in so far as it is always a selected group as to parentage, social environment and intelligence that seeks an academic education. This group represents theoretically young men who have had the best medical advice. Actual invalids are naturally not to be expected in this group. Of these 662 students 13, or approximately 2%, had a definite lesion of one or more valves of the heart. There were two additional cases in which there was some question of valvular trouble. In 10 of the 13 cases the mitral valve was affected, in two of the cases the aortic valve, and in one both the mitral and aortic valves were affected. In every case the heart was perfectly compensated, and it might be assumed that if the lesion progressed no further there would be no serious handicap to moderate activity.

A study of the histories of these cases showed that five out of the thirteen, or 38%, gave a definite history of rheumatic fever; one case had had it twice. In one case the cardiac condition dated definitely back to the milk epidemic in 1911. He had tonsillitis and rheumatic fever at that time, and subsequently developed not only an endocarditis but persistent albuminuria. None of the other cases presented albuminuria. Eight of the cases gave a history of severe tonsillitis, two of the cases had had pneumonia. One youth had had both pneumonia and rheumatic fever. Another had scarlet fever at 11, pneumonia at 15, and three attacks of tonsillitis. His endocarditis might have originated from any one of these infections, or a combination of two or more. Four of the cases had had scarlet fever. Only one case gave a history of no more serious infection than chicken-pox, measles and whooping-cough. That case had had some operation on the tonsils at 10 but the tonsils were still present. Seven of the thirteen cases had had some operation on their tonsils. However, 43.5% of the whole group of 662 freshmen had had some operation on the nose or throat, so that the increased percentage of cases with valvular defects with tonsillectomy was hardly striking. One of the thirteen cases had obviously large tonsils, another had buried tonsils. Removal was advised in both cases.

In order to contrast the rheumatic history in the group with valvular defects, which showed a history of rheumatism in 38%, the histories of the other 649 cases were analyzed. Thirty-five of these presented a history which might be interpreted as rheumatic fever. The interpretation was very liberal and certainly included all the possible cases and probably a considerable number of cases that should not be so classified. This gives us a percentage of 5% in the group without valvular lesions as contrasted with 38% in the group with valvular lesions. Furthermore, there were two young men who gave a history of rheumatic fever and who had hearts that seemed enlarged according to clinical ex-

amination but without other signs of valvular disease. It seems not unlikely that these two students had a slight endocarditis. The importance of rheumatic fever, which has long been recognized as an important etiological factor in valvular heart disease, is thus confirmed. Rheumatic fever is not always associated with endocarditis. It is possible to have rheumatic fever without endocarditis and endocarditis without rheumatic fever. It is probably true that rheumatic fever, like endocarditis, is only one of the results when bacteria, usually of the streptococcus, pneumococcus group circulate in the blood. The initial disease which permits the entrance of the organisms may be scarlet fever, pneumonia, tonsillitis, or any other infection. The essential point of emphasis is that to prevent valvular disease of the heart it is important to prevent antecedent infections which result in endocarditis. In one case the method of infection was patent. The case was acquired during a milk epidemic and could have been prevented by the use of pasteurized milk. The method of infection of the other cases was not apparent. The tonsils seemed to be accused as the atrium of infection in the majority of cases on account of the history of previous tonsillitis. Pneumonia and scarlet fever were in other cases probably the immediate etiological factor. Therefore the prevention of all the acute infections, particularly those associated with tonsillitis and rheumatic fever, seems to be the preventive treatment of valvular disease of the heart.

In Dr. Cabot's classification syphilis of the heart caused 12% of his series. Syphilis is an infection and the emphasis must be laid not so much on the prevention of cardiac manifestations after syphilis as the prevention of syphilis itself. Granted the existence of syphilis in a given case, the importance of thorough treatment of that case, not only to prevent cardiac and other complications, but also to prevent the spread of syphilis is obvious.

Evidence is slowly accumulating, tending to demonstrate that arteriosclerosis is dependent in a large measure upon the toxins of certain infections. That arteriosclerosis is due to lead is undoubtedly, that it may be due to other similar poisons is possible, but at present the evidence points definitely that arteriosclerosis may well be due in the large majority of cases to the toxins of the various infections. To my mind the prevention of arteriosclerosis lies in the prevention of infections with their toxins and the prevention of the introduction of other poisons like lead, rather than in the modification of habits of living and diet. The importance of proper habits and diet in the treatment of arteriosclerotic disease is, however, well recognized.

In the nephritis group we are dealing again in the large majority of cases with the end result of an infection, working not directly on the heart, but on the kidneys and thus on the heart. How often does a nephritis date back to an

early scarlet fever? Even in the degenerative form of nephritis the infections play an important rôle in causation as they do in arteriosclerosis.

The introduction of new methods of precision, the polygraph, electrocardiograph, the Roentgen ray, the sphygmomanometer, the complement fixation test for syphilis have all contributed to a more accurate differentiation of cardiac disease. In consequence of this change of criteria, it is probably true that we have eliminated fully as much as we have added. For example, it is now possible to interpret many cardiac irregularities and to exclude them from actual cardiac disease. Tea, coffee and tobacco are the frequent causes of cardiac irregularity but not of cardiac disease. Many cases of the so-called cardiac disease, so diagnosed on account of irregularities, are now known to be only functional disturbances of rhythm and not cardiac disease. Another popular fallacy has been that participation in athletics caused cardiac disease. Dr. Cabot was unable to find any such case in his series of 600. Mackenzie² in England has protested against this fallacy and says he has never seen a case of "athletic heart." I have personally seen many cases of so-called athletic heart, but have failed to find them abnormal. I have recently studied the effect on the heart of rowing, and have failed to find evidence that prolonged participation in rowing for a period of ten years damages the normal heart.

CONCLUSIONS.

Most heart disease is due to an antecedent infection. The prevention of heart disease is the prevention of infection. While it is true that certain infections like the tonsillitis-rheumatic fever symptom-complex group and syphilis are particularly associated with cardiac disease, yet logically every infection may be regarded as a possible carrier of damage to the heart. There does not seem to be adequate appreciation of the possible sequelae of infections, particularly rheumatic fever. Continued supervision after infections is important in order that an early endocarditis may be detected and the resulting damage be minimized. At present the development of medical inspection and supervision of school children seems the next step.

The prevention of infections is an enormous problem, but must be faced. It is possible to control better scarlet fever and syphilis. It is possible to make milk supply reasonably safe, and it is possible to remove diseased tonsils. It is the fashion now to remove tonsils in as many school children as possible. It is still an open question as to the desirability of removing moderately large tonsils in the absence of history or evidence of disease processes in or connected with the tonsils. While further legislation may be of assistance, the true solution of this problem can be found in the proper appreciation by the public and the medical profession of the

danger of all acute infections. The avoidance of infection and the prevention of its spread is largely a matter of personal hygiene. The department of health can and does supply the necessary information. The utilization of this knowledge depends on the intelligent co-operation of physicians and the public.

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¹ Cabot, R. C.: *Jour. of the Am. Med. Assn.*, 1914, lxiii, p. 1461.

² Mackenzie, J.: *Brit. Med. Jour.*, 1912, ii, p. 1697.

vi.

TUBERCULOSIS: THE POLICY OF THE STATE OF MASSACHUSETTS REGARDING TUBERCULOSIS.*

BY ARTHUR K. STONE, M.D., BOSTON.

It has been repeatedly asserted, especially at legislative hearings at the State House, that Massachusetts has no policy regarding tuberculosis. This assertion has been made, not only by laymen and lawyers, but also by physicians who should have known better, and therefore I am going to take this opportunity to set before the members of the Massachusetts Medical Society the policy of the state, which has been developed by careful study and enacted into law by the legislature.

The first idea in the legislative mind in dealing with the tuberculosis question in Massachusetts was to provide a place where consumptives could be cared for, and Rutland was started, not as was intended, but as a sanatorium. Later the three new state hospitals were built, again with the expectation on the part of the petitioners and the legislature that they, too, for the most part would take care of the far advanced cases. But the pressure for beds for cases who hoped for cure was so great that they became filled with moderately early cases; and yet the demand for the care of the far advanced cases was just as insistent as before; nay, more insistent, for the people had to a large degree come to look for hospital care for their advanced cases, having been educated to the danger of contact with them. Massachusetts was already well in the forefront of states in the tuberculosis campaign, but there was steady pressure for more opportunities to care for the unfortunates.

Accordingly, the legislature of 1910 directed that a commission should study the needs of Massachusetts and report to the following legislature. This commission, headed by Drs. H. P. Walcott and A. T. Cabot, with Dr. R. I. Lee as secretary, went over the whole ground most thoroughly, and made various recommendations, which became embodied in a series of laws and amendments to existing laws enacted by the legislature of 1911. Briefly, the policy then established was as follows:—

It is the duty of the state to care for three classes of tuberculous patients: First, state wards, that is those persons by any chance un-

* Read before The Massachusetts Medical Society, June 9, 1915.

der the authority of the state, either in its asylums or prisons, who are found to have tuberculosis; second, those persons of foreign birth who have no legal settlement in any municipality of the state; and third, those persons who are at such an early stage in the disease that they are best treated in accordance with the most approved sanatorium methods. It was recognized that in every way so far as possible, it was desirable to separate these early, incipient cases from all contact with advanced cases and to treat them intensively.

There still remained the great group of advanced cases to care for,—cases which must have protection and care; patients who are discouraged, who want to be near familiar scenes and friends, and yet who through advancing weakness are unable to care for themselves and thus become a consequent menace to those about them. It seemed desirable to take care of these patients as near their homes as possible, and the law requires that all cities shall provide for the care of its tuberculosis patients, either in a separate institution, or by arranging with a nearby city for such care; or several cities may unite in hospital construction. In addition, towns on request of the department of health, may be included in this act. This is a necessary provision as will be seen when one considers that we have a community of 40,000 people living under so-called town government.

In order to help the municipalities in their work of hospital construction, the state has guaranteed to subsidize each town or city by the payment of five dollars per week for each patient maintained in a hospital that has been approved by the Board of Trustees of Consumptive Hospitals; and in the last year Massachusetts paid out about \$129,000 for the care of such tuberculosis patients. A subsidy is practically given to all patients, for the state charges but four dollars per week for patients in the various sanatoria, while the actual cost to the state is about ten dollars per week.

Further to encourage people to go to the various hospitals, it is provided that persons in hospitals and sanatoria for tuberculosis, when they cannot pay themselves, their board is paid by the health department of the municipality in which they have legal residence, and they are not pauperized by receiving such aid.

That the patients may be found early, when the probability of cure is greatest, it has further been enacted into law that the cities and all towns of 10,000 inhabitants shall maintain a dispensary, which has been defined to include a suitable room, a doctor, and a dispensary nurse. Here people who fear the disease can go and be examined, and can receive advice and help in case of need. Here, too, can be referred the person leaving the sanatorium, so that the very necessary "follow-up" work can be carried out to the greatest advantage and the work of the sanatoria made more effective. The dispensary nurse and the school nurse may be combined in

some communities, and in all they should work in harmony so that cases of tuberculosis may be discovered in children through these two agencies, for it is the consensus of opinion at the present time, that many, if not the majority, of cases of tuberculosis receive their primary infection in childhood, breaking out later during the stress of work and modern life.

Thus Massachusetts has a very definite policy as regards tuberculosis, and one that I believe to be most excellent and one that, in general, we physicians should support enthusiastically.

It has been asked, Why should not the state care for all the cases of tuberculosis as it does for the insane? Would not the state hospitals be better run—less in politics—than municipal institutions? This has been the contention of the Fall River Chamber of Commerce, which has been the most severe critic of the state policy. The Board of Health and the Board of Trustees of Hospitals for Consumptives, as directed by the Legislature of 1912, and the Recess Committee of the Legislature of 1913, who again reviewed this ground most thoroughly, were not convinced that it was desirable to change the policy of the state, and recommended various amendments to the existing laws, which affected them in detail only.

The great importance of the care of the advanced tuberculosis patient in the municipal hospital is, to my mind, the educational argument. The advanced case is a menace to the community. He should be in a hospital, if possible, for his best care, and secondly for the protection of the community. The hospital should have attractive features which should appeal to both the patient and his friends. It should be easy of access, that the friends may be able to visit frequently and thus maintain an interest in the patient. They should feel a personal responsibility for the institution. The board by whom it is run, and the doctors connected with it, should have personal interest in the whole problem, and the citizens should have the details of the work and the need of it brought to their attention each year in the annual reports and budgets, which will show emphatically the frequency of this disease in the community; for it is only when a community is awake to the ravages of tuberculosis that there is any hope of eradicating the disease.

Then, too, it must be remembered that the township is the political unit of New England, and that towns and cities included in artificial boundaries have often very distinct individualities differing from those of an adjacent town or city. Hence, it is often hard to get co-operation between towns and cities, when to the casual observer there should be no reason why such towns or cities should not unite to advantage to build combination hospitals for their patients. In most cases, I am sure that the best results will be gained if the municipality faces its problem and builds a hospital which shall care for its own advanced cases.

Two rural communities have appreciated the needs of their people and have come forward and asked for special legislation to enable them to construct a tuberculosis hospital. This broad-mindedness was first exhibited by Hampshire County, which, containing only one city (Northampton), asked and received permission to build, and has built a hospital for the tuberculosis cases in its county. This group of towns had a population of about 63,000 persons. This year Barnstable County (the Cape Cod towns) was given permission to construct a hospital for tuberculosis and a hospital for contagious diseases; and Cape Cod has only about 30,000 inhabitants, scattered in small villages from Provincetown to the canal. Certainly these people should be an inspiration to other communities to look after the sufferers within their boundaries.

In a few instances it is a hardship for a small city to build a hospital which will be difficult to run economically. It is a recognized fact that an efficient hospital unit is about forty to fifty beds; below that number the overhead charges are too great for economy; and above that the general service soon has to be doubled to make for efficiency. In some instances, such problems may best be met by arranging a hospital for a group of towns combined with the city in question; and in other cases, by having two or more neighboring cities unite to build a hospital in common, or by having a contract made between the city building the hospital and its neighbors whereby they agree for a rental and a definite per patient cost to send their patients to the hospital. The city of Malden has expressed a willingness to accommodate in this manner one or two of her neighbors.

Here, however, comes difficulty in regard to municipal jealousy and distrust, and such combinations are going to be difficult to arrange; and if this idea of combination is to be carried out, some further legislation will have to be enacted, giving somebody (probably the Public Health Council) power to arbitrarily combine cities and towns into groups for the construction of hospitals for tuberculosis patients.

There is need of these hospitals at once. There are patients already for the beds. There are long waiting lists at all the state sanatoria. Patients not unfrequently pass from the incipient and early stage before they can be admitted to the institutions that are especially designed for the cure of the early case. These state sanatoria have done good work, but never the work which they are capable of doing, because they have not had the truly early case to deal with exclusively.

The reporting of cases of tuberculosis, which is a part of your duties as physicians, is not carried out as it should be. Recently, I was told by a physician in a city of about 35,000 inhabitants and having 25 doctors, that there were approximately 60 cases of tuberculosis reported in that city, of whom a quarter had been reported

by himself. He did not believe that he had that proportion of the tuberculosis work of the city. In too many towns and cities the reported cases are yet fewer than the number shown by the mortality statistics. This should not be; the town and city officials and the State Department of Health should know of the extent of the disease throughout the state. It is your duty to see that this law is carried out; and it is only when the extent of the problem is known that the laymen and city officials will be ready to meet this important problem.

Let every physician realize that Massachusetts has a state-wide policy regarding tuberculosis, that it has been carefully considered and devised to meet the needs of the political life of the state, and that this policy should be enthusiastically supported in its general lines, and that any amendment should be to meet certain specific difficulties rather than to consider any change in its general construction.

VII.

SYPHILIS.*

BY ABNER POST, M.D., BOSTON.

As affecting the public health, syphilis must be considered as a great deal more than simply a venereal disease. It is a communicable disease, chronic, lasting many years, intermittent, disappearing for a time so completely as to simulate a cure, only to reappear later in some cases in more serious forms. (In fact, certain pessimists affirm that it is incurable.) It is infectious in its earlier stages. Later stages are hardly communicable at all. In fact, it was believed some years ago by many that its later or tertiary stages were never communicated. The continued existence of its microscopic entity in tertiary disease is now positively known, and, in consequence, the possibility of infection; but practically the cases of infection from tertiary disease are very rare.

From the standpoint of preventive medicine it is very necessary to distinguish between the dangerous cases and those practically harmless. If the recent infectious cases can be rendered innocuous the spread of the disease will be wonderfully diminished.

The knowledge that syphilis is largely venereal in its origin has led to the attachment of a stigma to all syphilitics. This has made the syphilitic resort to clandestine medication, to advertising doctors and advertised remedies. A curious mental condition in the community has led to the refusal of hospital relief to syphilitics. A feeling that syphilitics are unfit for Christian charity seems to be an underlying sentiment. In addition it has been considered that their condition was the result of their own acts, and their relation to the public health has been ignored. One of the results of this condition of public

* Read before The Massachusetts Medical Society, June 9, 1915.

opinion has been its reaction on the medical profession. It is one of the diseases which students have very largely been allowed to pick up. In few medical schools has it been systematically taught. Although hospitals have refused to accept such cases, cases have crept in. They are admitted under false diagnoses, and in that manner they falsify the hospital reports. Rheumatism, tuberculosis and cancer are but some of the diagnoses under which syphilis are admitted. Hospital reports of diseases treated have been greatly reduced in value by the failure to recognize the diagnosis of syphilis. A similar condition exists in private practice. It is a brave man who dares sign a death certificate giving syphilis as the cause of death. All sorts of evasions are resorted to, all of which tend to invalidate vital statistics. The vast number of cases in which the disease is discovered by the Wassermann reaction in the laboratory is strong evidence of neglect of clinical study.

Various remedies have been tried for the control of syphilis:—

1. Registration and license of women of the town is the one largely pursued in European countries. That system is based upon a wrong principle. It is believed by many to be a failure in practice. It is impossible of execution in this community.

2. Expatriation, or the driving out of that class of women who are supposed to have spread the disease, has been tried in various communities. No community can follow that method for any length of time. For to drive them from one place is only to drive them into another. It is also based upon the theory, which is erroneous, that one sex alone spreads the disease.

3. Compulsory registration is proposed and has been tried to some extent. It is too early for such a procedure. With present ideas it could only favor concealment and deceit on the part of doctors and patients alike, and recurrence to clandestine medication, to advertising doctors and advertised remedies.

In this community we have tried neglect and refusal to recognize even the existence of the disease. It has so flourished that it is no longer possible to ignore it. It demands our serious attention. If we can extinguish or control the fresh infections we can safely neglect the later cases, so far as danger to public health is concerned. It is certainly with fresh or infectious cases that we ought to concern ourselves. Fortunately these are the easiest cases to deal with. These cases are rendered harmless, for a time at least, by a single dose of 606—not necessarily forever harmless, nor are they always absolutely cured. But it certainly diminishes their danger wonderfully. A single visit with the immediate administration of 606 is worth a dozen visits otherwise treated with other treatment, so far as danger to the community is concerned. Unfortunately for the State, we compel these patients to pay for their own treatment. This they can-

not always do at a moment's notice. The treatment is postponed and the patient disappears untreated. The State ought to take advantage of the first visit by free and immediate treatment. It is a wonderful opportunity.

Salvarsan is not necessarily the best remedy possible. It will doubtless be supplanted by a drug more easily obtainable. But it has demonstrated the fact that the spread of syphilis is more easily controlled than was possible earlier. If this drug becomes unattainable, some other combination will undoubtedly take its place.

The laws at present on the statute books are sufficient for present control. They obligate cities and towns to care for such cases, and allow no hospital supported wholly or in part by taxation to discriminate against the disease unless by provision of a special hospital. They provide for the arrest and custody of anyone with a disease dangerous to the public health, under the law which permits the removal of any person who is a menace to the community.

Failure to provide medical care for the children who have inherited or acquired syphilis is construed by the courts as cruelty to children, under the physical neglect law.

The retention of all inmates of public institutions while they are a menace to public health is provided by law.

We do not need more laws, but the enforcement of existing laws. A change in public sentiment is already beginning.

The Massachusetts General Hospital has maintained for nearly two years a separate department for syphilis, with large out-patient facilities and a few beds. The Boston City Hospital has practically done the same thing. The Children's Hospital has changed its policy and now treats children with syphilis. The Boston Dispensary has for many years paid considerable attention to these cases. Worcester has provided a hospital ward for their care. The Psychopathic Hospital has done very much to spread a knowledge of the disease in its cerebral manifestations, and while not called upon to take measures which shall prevent its spread, has been caring most watchfully for those cases which ought to be very largely prevented by such care of earlier cases as has been here recommended. The Massachusetts Medical Society devoted a forenoon to the subject last year. The New York State Medical Society at its last annual meeting instituted a separate section and devoted three days to the disease.

The Post Office has done much to protect credulous sufferers against unscrupulous advertisers, but no one of these agencies has gone so far as to consider it the duty of the town or state to make itself responsible for the curing of the patient. We are still inclined to regard the syphilitic from the viewpoint of the moralist rather than that of the pathologist. We still act as if the disease was communicated by immorality alone and its dangers were confined to the immoral.

From the standpoint of protective medicine and public health, the following matters would seem to be indicated for the present:

To recognize syphilis as a communicable disease.

That it presents problems for the physician which should not be entirely given over to the eugenist and the moralist.

That cases should be provided with hospital care.

That the best means available for treatment and cure of early cases should be provided by the community for such individuals as are unable or unwilling to provide it for themselves.

That the disease should be regarded as a subject worthy the most careful study of physicians and students.

These means would meet with no opposition. They would go far towards controlling the disease and prepare the way for more vigorous measures later.

VIII.

CONTAGIOUS DISEASES.*

BY EUGENE R. KELLEY, M.D., BOSTON.

STUDIES upon contagious or communicable diseases and attempts to control them represent the oldest branch of preventive medicine. For all practical purposes, until quite recently, the consideration of "contagious diseases," "general sanitation," and "vital statistics" covered the entire field of preventive medicine. As the bacterial concept of communicable disease transmission became better established the prodigious amount of detailed, technical study and investigation, involved in both the laboratory and administrative side of preventive medicine, tended naturally and inevitably to create a group of specialists. From this it was a most natural development for the general public and the medical profession as well, to consider the whole question as one for the specialists to concern themselves with—as one that did not affect them at all. Only today are we fully beginning to realize that if the old glib phrase, "contagious disease control" is ever going to be something more than a phrase—is ever going to become an index of fact rather than a figure of speech—we must change about radically and point out clearly and unmistakably to the people that the control of contagious diseases is impossible so long as it is considered a subject which concerns the hygienists and the medical profession alone.

The most encouraging thing about the subject of communicable diseases is the rapidity of the progress that has been made in the fight against them in the immediate past. It is not putting it too strongly to say that until the past half-century mankind made little intelligent advance in the problem of contagious disease control. While

several significant discoveries and advances, one epoch-making, were made during centuries of observation, the true nature of the cause of contagion was still wrapped in impenetrable mystery. Without this fundamental knowledge, all deduction, all epidemiological observation, all the intellectual forces of mankind went hopelessly astray when brought to bear upon the problem. Since the discovery of the bacterial concept of disease by Pasteur, however, real solid advance has been most rapid. For example, in this country since 1880, the first year in which figures for any portion of the United States outside of Massachusetts became available, and the year in which the United States Registration Area was established, the mortality for that portion of the United States admitted to this area from certain prominent communicable diseases has dropped as follows:

Typhoid	50%
Scarlet fever	89%
Diphtheria	84%
Tuberculosis	54%

For the beginnings of scientific disease prevention in America, it has come about that the Massachusetts Medical Society can claim the eternal credit of having been responsible in no small measure through the individual studies and profound foresight of certain of its members and the enlightened stand taken by it as a corporate body.

The question that most concerns us now is—Where does Massachusetts stand in the question of communicable disease control today—what further reductions in the prevalence of these diseases can reasonably be expected of the future—and how can such reductions be brought about?

The achievements of this state in the past twenty years are most striking. The reduction in the main has been steady and consistent; and the bare figures speak louder for themselves than any embellishment can ever do. The fatality rate from typhoid fever has been reduced nearly 75% in twenty years, and the actual typhoid fatalities from 680 typhoid deaths in 1895 to 234 deaths in 1914; the fatality rate from diphtheria has been reduced over 80%, and the actual diphtheria fatalities from 1784 in 1895 to 601 in 1914; the fatality rate from consumption has been reduced nearly 50%, and the actual consumption deaths from 5486 in 1895 to 3362 in 1914. These facts are an enduring monument to solid achievement in true preventive medicine. The cold statistics serve to call up to the imagination of hygienists and physicians the hundreds now living that without this advance would be in cemeteries—the thousands now in the joy of health and strength that otherwise would have suffered from these scourges.

But when we come to certain other common contagious diseases, we do not find the record either so clear or so satisfactory. Scarlet fever,

while showing on the whole a reduction, is so variable in its frequency and fatality that we cannot make any such confident assertions as we can for those diseases mentioned above. Measles and whooping cough, those diseases considered so negligible by many of our fellow citizens, but known by us to be so serious, show no reductions that are not followed by periods of corresponding increases, the measles fatality rate for the last year of our twenty-year period being almost exactly twice the rate for the initial year of that period. To these we may add those other great variables of epidemiology, infantile paralysis and cerebrospinal meningitis. It is evident that there still remains something to be done in the control of communicable diseases.

Neither can Massachusetts claim any marked superiority over the other states in the degree of completeness of contagious disease diminution, except in the matter of typhoid reduction. The practising physicians in Massachusetts reported last year (1914) 7144 cases of pulmonary tuberculosis, 2333 of typhoid, 11,057 of scarlet fever, 12,264 of measles, 3316 of whooping cough, and 8080 of diphtheria. These facts are enough to indicate that the control of contagious diseases is still a problem worthy of our most serious consideration. Can we solve it?

Within the assigned limits of this paper, we can only consider in barest outline the means which we can look to in our attempt to reduce communicable disease prevalence:—

1. First of all must come a better education of the general public, particularly parents and educators, as to the real nature of contagious disease transmission. To a great extent the public mind is still focused on environment rather than upon living beings, whether human, animal or insect, or, in short on the inanimate rather than the animate world, as the prominent factor in communicable disease transmission. To prove this point, we need only note the blind reliance the general public still place in fumigation and the slowness with which they grasp the conception of direct disease transmission through the naso-pharyngeal or alvine discharges.

2. We must have more efficient diagnoses. Improvement here has been consistent, I believe, although perhaps slow. A wider and prompter use of the diagnostic laboratory is one great aid that the physicians of this State should have more readily accessible in many portions of the State than is the case at present. But it cannot be said that the facilities of the present laboratory systems are utilized to the extent they might well be. Take diphtheria, for example. If any clinical fact is now well established, it is that there is no specific clinical picture of a beginning diphtheria. The physician should try out by culture any suspicious throat, particularly if diphtheria is known to be present, and not wait until the clinical picture is typical and then send a culture. Nor should a single laboratory negative in suspected diphtheria, tuberculosis, or

typhoid cause the physician to relax his clinical vigilance. The fact that a single laboratory report is negative is no better evidence that the disease is not present than the fact that we fail to catch any fish in a given stream on a given day is evidence that the stream contains no fish.

3. Another factor of great importance is prompt reporting to the authorities, so that they may investigate and assume control as early as possible. Every single case of contagious disease can be regarded in only one light, viz: as a potential focus for an epidemic. It is a fact worthy of record that the physicians of Massachusetts today report a higher proportion of cases when compared with the mortality figures than probably any other state in the Union.

4. Following the reporting comes logically efficient isolation—efficient isolation is at its best in hospitalization. The need of hospitalization varies with many factors. Of all our contagious diseases it is most urgent in the case of tuberculosis because of the chronicity of the disease and the insidiousness of infection. It becomes less necessary as we go up the social scale and as the density of population decreases, for obvious reasons,—but whether our isolation be at home or in a hospital, the modern tendency is strongly away from "shot gun" quarantine policy, and towards an enlightened contagious disease "asepsis" for the sick room, leaving those who do not come into direct contact with the patient a much greater freedom.

Other means of contagious disease control which deserve consideration at length, but which we will only mention, are:—

- (a) Hygienic supervision of schools.
- (b) The use of specific sera for cure, detection and prevention.
- (c) Protection of food supplies.
- (d) Venereal prophylaxis.

This in brief is the program we must follow to achieve our aim. The part played by the medical profession must continue to be, as in the past, one of unselfish curtailment of certain sources of their own revenue; and in addition one of much greater utilization of their teaching capacity in their dealings with the public, and of support for the public health administrators in their oftentimes disagreeable duties.

If we can do this I feel that it is not unreasonable to predict at least a 10% further reduction of tuberculosis frequency and fatality in the next ten years; at least 50% diphtheria decrease; as much typhoid and epidemic cerebrospinal meningitis decrease; a substantial, although I will not venture to predict how great, reduction for measles, scarlet fever and whooping cough; and a hope that we may be able to do something more satisfactory than we have hitherto done against infantile paralysis.

Original Articles.

SPOTTED FEVER OF THE ROCKY MOUNTAINS.

By G. F. POPE, M.D., WINNEMUCCA, NEVADA.

1. Etiology. Geographical distribution: For about thirty years this disease has been known in the Valley of the Bitter Root River, situated in Western Montana. A few cases have also been observed in other parts of that state. In Idaho the disease has been pretty generally found at different times, especially in the southern part of the state, along the Snake River and its tributaries. In Nevada, the Quinn River country, Buffalo Valley and along the Humboldt we find it pretty generally distributed. Also in parts of Eastern Oregon it is found in a mild form.

2. Season. It is a disease of springtime and early summer, as early as the middle of March and as late as the first of August. It is never seen at other times of the year, and it seems to come with the ticks and go with the ticks.

3. Climate. The disease does not prevail south of 40° latitude or north of 47° latitude, and seems to be prevalent in elevation of about three to five thousand feet above sea level.

4. Occupation. It infects individuals whose occupation takes them into the open sage brush country, such as stock men, common sheep herdsmen, miners, prospectors, lumbermen, and those who are exposed to the bite of the tick.

5. Age. I have seen it in a child of five and in a man of sixty-four.

6. Sex. In fifteen cases, five were females and ten males.

7. Blood Examination. One hundred and fifty blood smears in fifteen cases have been studied and no parasite has been found; in each case Jenner's or Wright's modification of Jenner's stain has been used. This would seem to disprove the findings of Wilson and Chowning; and Anderson's work at Mazula, Montana, which verified Wilson and Chowning's discovery of a parasite in the blood, was disproved by Styles and Ricketts.

8. Method of Infection. On investigation it is found that all the patients had been bitten by ticks, some of them many times, and that the disease comes as the ticks come in the spring and disappears when they leave in late summer. As to intermediate host, it is generally believed among old ranch men that sheep are the most common hosts and that there never was a case of spotted fever before the advent of the sheep industry into these mountain states. This would seem to be carried out by experience. But Ricketts has very satisfactorily proven that many other animals may act as intermediate host in this disease,—the ground squirrel, cattle, horses, rabbits, and indeed any of the animals which

rove these great ranges. The first case in the state of Nevada occurred in the year 1874, and was thought at first to be a case of smallpox. I must, of course, refer to those most valuable experiments of the late Dr. Ricketts of Chicago— inoculation experiments, which proved that immunity was established by the artificial production of spotted fever in guinea-pigs. This experimental work, I was unable to carry out. From the examination of a number of ticks found in the neighborhood of cases of spotted fever, I have found the most prevalent form to be *Dermacentor Venustus* of the classification of the Bureau of Entomology of the United States Department of Agriculture.

9. Symptoms. Incubation: This is from three to ten days, usually seven. There may be a few days of general malaise, with chilly sensations, nausea or a distinct chill, and the patient takes to bed. Generally there is pain in the back and all the muscles and bones feel sore. Or the symptoms may be much exaggerated and the limbs feel as if in a vise; bowels are always very constipated throughout the disease; tongue heavily coated, with red edge and tip; conjunctivae congested, becoming yellow; urine small in amount, of high specific gravity, with albumen and sometimes casts; little bronchitis after a few days and nose bleed is present in all cases.

Fever. Before the distinct chill there is a little or no fever in the morning, but a slight rise of temperature in the afternoon. Then the course of the fever is just like an ordinary typhoid, with gradual rise in the evening, and morning remission. The maximum is usually reached on the tenth to the twelfth day; then gradually falls to normal, in favorable cases, on the fifteenth or eighteenth day. The temperature may get as high as 104 or 105, with slight morning remissions.

Circulatory System. The pulse is that of an average typhoid, and blood pressure in one well nourished adult of twenty-five after the first week dropped to ninety and stayed there for two weeks. Blood examination showed a progressive decrease in the red cells, with increase in the number of white cells from 15,500 to 17,000. A differential count made in three cases showed an average as follows:—

Polymorphonuclear leucocytes	80.2
Large mononuclear leucocytes	10.0
Small lymph leucocytes	9.0
Eosinophiles .....	.8
	—
	100.0

Widal's reaction negative in fifteen cases examined.

Eruption. The eruption usually appears on the third or fourth day of the disease and is seen first on the wrists and ankles, then on the soft palate and uvula, then on the legs, arms, forehead, back, chest and abdomen,—on the abdomen least abundant, but literally covering

other parts of the body. The spots at first are of a reddish salmon color, macular at all times, and about the size of a split pea. At first they disappear readily on pressure and come back to their original color quickly; after a time they become darker and darker, until they are of a distinct purple. By the tenth day of the disease they fail to disappear on pressure and are petechial in character. In about fourteen days they begin to lose their petechial character and disappear slowly on pressure. When the fever begins to go the eruption begins to fade, but a return of fever, free perspiration or exposure to a cool breeze will bring out these purplish spots again. This peculiarity may last for weeks or even months after convalescence. The skin may be quite fair, but a slight perspiration with sudden exposure to a cool breeze will bring out the purple spots at the site of the old eruption. I never have seen any well defined desquamation after the disease, but this may be due to the fact that I use boric acid, sponging constantly through the febrile period. In neglected cases when nutrition is poor and bathing is not well carried out, we may have necrosis of the skin over the different points of pressure, and in other cases sloughing of the soft palate. The skin is always jaundiced, the conjunctiva congested and yellow.

Digestive System. There is white coating of the tongue with red edge and tip, later sordes on the teeth and lips. Appetite is fair during the first week, but nausea may be a marked symptom and last to the end. Constipation is always present and is very marked. Some tympanites is usually seen. The spleen becomes enlarged early and may extend two inches below the costal margin.

Urinary System. The urine is reduced to about half the normal amount in twenty-four hours, with little albumen and casts.

Respiratory System. There is always a little bronchitis, and lobar pneumonia is a frequent complication. Epistaxis is seen in the first days.

Nervous System. Pain in the back and head is marked during the first week of the disease. Patients change position frequently because of the soreness in muscles and bones. The mind is usually clear, even in the severest cases and the pupils react normally.

10. *Treatment.* The treatment is purely symptomatic. It consists in the use of high enemas, when necessary to keep the bowels free. Feeding should be in the form of large quantities of easily digested food, peptonized milk, chicken broth, toast, eggs in any form and ice cream. I have been using a liberal diet as follows: for breakfast, at 6 A.M., farina, one portion with lactose, one and one-half ounces and cream, one and one-half ounces; bread and butter, two ounces without crust, one egg, coffee, five ounces, with cream, one and one-half ounces, and lactose one ounce. Eight o'clock, hot milk, six ounces, with cream, one and one-half ounces, and lactose,

one ounce, bread and butter, two ounces. Dinner at twelve, broth 8 ounces, bread and butter in form of milk toast, two ounces, with milk, six ounces and cream one and one-half ounces, lactose one ounce, eggs poached, two; rice, one portion with cream, one and one-half ounces, lactose, one and one-half ounces; 2 P.M., ice cream one portion, bread and butter two ounces, milk six ounces with cream one and one-half ounces. Supper at 6 P.M., wheat breakfast food, one portion, with cream one and one-half ounces, lactose one and one-half ounces, bread and butter two ounces, cocoa, two cups with cream; 8 P.M., orange albumen, made from the white of two eggs and one-half ounce of lactose.

Tepid sponge baths of saturated solution of boric acid are continued throughout the disease every six hours as long as the temperature is over 102. Mouth and teeth receive careful attention by the use of tooth brush and gargling with liquor antisepicus, U. S. P., every six hours. Internally I have found quinine to be useless if not harmful and I have contented myself with the use of five grains of salol every six hours. The boric acid tepid bath, as in smallpox, seems to lessen the congestion of the skin and favor the course of the disease, at least I have thought that it did and I know that patients derive much comfort from this form of treatment. Undoubtedly the future will bring to us some form of vaccine treatment which may be of distinct service in a disease having the etiology of spotted fever.

Medical Progress.

PROGRESS IN GYNECOLOGY.

BY STEPHEN RUSHMORE, M.D., BOSTON.

MENSTRUATION.

In the investigation of pathological uterine bleeding, a point of view to which, in general, little attention is paid, according to Novak,¹ is that which looks first for the cause of normal uterine bleeding or menstruation. This is especially of importance in cases where no obvious anatomical basis is found, for in normal menstruation there is no evident cause for the escape of blood into the uterine cavity. Neither the changes in the structure of the endometrium, as hyperplasia, nor changes in the muscle, as in the so-called uterine insufficiency, nor in the blood vessels, as in arteriosclerosis, will throw light on the group of cases which is to be explained.

On account of recent studies of internal secretion and the various organs which somewhat definitely contribute this element to the body economy, the following theoretical explanation of menstruation may be formulated:—

1. There is first some underlying cause (or causes).
2. There is a nervous mechanism, essentially vasomotor in nature, determining pelvic congestion, and
3. There is the terminal mechanism, the uterus and especially the endometrium.

The causes of uterine bleeding may, therefore, be divided into three groups:-

1. Fundamental, including disturbances of internal secretion of the ovary or of some other gland;

2. Nervous causes exerting influence through the vaso-motor system; and

3. Anatomic causes, affecting structural changes in the pelvic organs, blood vessels or even the blood itself. It is the first and second group that Novak discusses.

In the study of the fundamental causes of menstruation, one is confronted at the outset by an enormous literature containing few facts. This means that so far, difficulty has been experienced in studying the ovarian function. Certain changes clearly follow removal of the ovary or cessation of its function. But increased ovarian function cannot be produced, nor is it recognizable in its manifestations. Recently the problem has been attacked by Adler from the point of view of the sympathetic nervous system. Here two functions are evident, called after the analogy of the nervous mechanism of the heart, sympathicotrophic, referring to the accelerator action on the heart, and vagotrophic or inhibitory.

Certain chemical substances, including hormones, exhibit a special influence on one or the other of these two systems. Epinephrin is an example of the sympathicotrophic group, pilocarpin of the vagotrophic. Adler has found in some cases of "ovarian insufficiency" as at the menopause, heightened susceptibility to small doses of epinephrin; and in some cases of uterine bleeding, a heightened susceptibility to pilocarpin. A certain amount of confirmation has been given by Novak from cases of his own. The conclusion that ovarian hyperfunction is the cause of the bleeding in these cases is only suggested, not proved, for the complete mechanism is so very complicated. Experimental work also has suggested rather than proved the presence of other factors in the cause of uterine bleeding, as changes in the coagulability of the blood when it reaches the uterus, the effect of other glands of internal secretion, and finally, the effect of the "nervous" causes, which includes impulses from the higher centers. Although in the case of menstruation there is no evidence of voluntary control, yet psychic factors may play a part, as is well known clinically.

Blair Bell² has made a chemical study of the menstrual blood in two series of cases, in order to determine the presence of fibrin ferment and of fibrinogen. In the first series of cases the menstrual blood did not clot; in the second, clotting was present. He found in the former

series neither fibrin ferment nor fibrinogen in any case. In the latter cases fibrin ferment was nearly always present; fibrinogen only a few times. He concludes, therefore, that it is the presence of the fibrin ferment that determines the clotting, and if this is absent clotting will not take place. But his search for the cause of the disappearance of the fibrin ferment has so far been in vain, though he says that it or its precursor is removed or destroyed by some vital process in the cells of the endometrium.

In the Hunterian Lecture by H. Beckwith Whitehouse,³ he has presented a study of menstruation which deserves careful attention. It is comprehensive and as detailed as the limitations of such a lecture would permit. It represents a contribution to our knowledge of the physiology and pathology of hemorrhage from the uterus. The non-coagulability of the menstrual blood represents the chief points investigated by Whitehouse himself. Normally the blood may clot in the uterus but a fibrinolysis is apparently present in the fluid of the menstrual blood, not, however, capable of resolving an unlimited amount of thrombus. It is thought by Whitehouse to be secreted by the glands of the uterus. The tissues of the endometrium contain, on the other hand, thrombokinase. The balance between these two factors is upset in the functional hemorrhages of puberty and of the menopause. In normal women it is easily disturbed, as is shown by the fact that in about half the cases investigated small clots were found in the menstrual blood though it did not clot. The original lecture should be consulted for the details of the experimental work which constitutes the basis of Whitehouse's contribution, presented in an interesting and scholarly manner.

DYSMENORRHEA.

Doederlein⁴ presents a good résumé of the various views on this subject which have been advanced by different investigators. While in a general way it is clear what is meant by the term clinically, the cause of the symptom and its significance are obscure. There is often gradual onset, with colicky pain and headache, nausea and vomiting. Between periods the patient is usually perfectly comfortable, though occasionally "mittelschmerz" occurs, of unknown significance. There is sensitiveness of the inside of the uterus, especially the internal os, and in the menstrual discharge may be found some of the cast off endometrium, according to Doederlein's statement. No satisfactory explanation of the cases is forthcoming, yet the increasing prevalence of the disease in America suggests as an etiological factor defective sexual hygiene, in the matter of regard for the physiological disabilities and weaknesses of girls in the critical period of development. The psychoneurotic factor is receiving more attention as a possible explanation, while local physical changes seem of less importance. Prophylaxis involves

sociological problems difficult of solution. Curative treatment should be both general and local. Hygiene, diet, tonics, rest, should be supplemented by opotherapy. Dilatation of the cervix, the use of stem pessaries and systematic sounding of the uterus have proved efficacious. Perhaps the favorable results here are due to dulling the sensitiveness of the uterine mucosa. During the attack applications of heat, sitz baths and hot douches with drugs (hydrastis, viburnum and opiates) to relieve the severe pain of uterine contractions are useful. In a number of cases latent tuberculosis has been discovered, and this possibility should always be kept in mind, whether the patient be of the robust or of the anemic type.

X-RAY IN THE TREATMENT OF MYOMATA.

The question of whether surgery can be eliminated in the treatment of myomata of the uterus is discussed at some length by McGlinn.⁵ On account of the growing, and, as it seemed to him, mistaken tendency to treat myomata by the x-ray, he wrote to a number of surgeons and roentgenologists in this country, asking their opinion on various phases of the subject. The replies, confirming in general McGlinn's opinion, form the basis of his article.

Reports favorable to the x-ray are due to failure to take into account the high percentage of cures by operation; practically all cases are cured that recover from the operation. The low initial mortality of the x-ray treatment must be counterbalanced by late failures. Besides, it is exactly those cases with complications, which chiefly give the operative mortality, that are deemed unsuitable for treatment with the x-ray. Other elements to be considered are the dangers from the x-ray, which are not limited to simple dermatitis; the inability to determine whether a given case is suitable for x-ray, as complications often cannot be made out clearly before operation; and the possibility of malignant change. Operation, with myomectomy as an alternative to hysterectomy, in certain cases of young women who desire children is more conservative.

On the other hand, there is no doubt that roentgenotherapy has controlled bleeding and in a certain number of cases has reduced the size of the tumor. Yet it can actually take the place of surgery in only a small proportion of cases. Its special field is those cases which are poor surgical risks, or in which operation is refused. If anemia alone is the contraindication to operation, x-ray may be used to check bleeding until the patient can be suitably prepared for operation.

RADIUM THERAPY.

The cases of uterine hemorrhage reported by Kelly and Burnham⁶ fall into three groups.

- 1 Metropathies (myopathia hemorrhagica),
- 2 Metrorrhagia in the young (soon after puberty), and

3 Polypoid endometrium.

Myomata of the uterus, in some of which no hemorrhage had occurred, were also treated. The interesting results obtained are worthy of notice: the hemorrhages generally ceased and the tumors disappeared or diminished in size. The preferred method of application is intrauterine as it is more efficacious and less likely to produce complications. Just how valuable this addition to the armamentarium of the gynecologist is, it is impossible to say as yet. Perhaps not as important as the authors say, for their claim that it is "perfectly suited to secure the disappearance of fibroid tumors" is vitiated by the fact that one case, in which the uterus was only ten centimeters in diameter, had to be subjected to radical operation. That is, one in a series of 21 cases. But we have, at any rate, a method that may prove of great value, and in the hands of those who can obtain the radium and are competent to use it, should be more widely tested before resort is had to operation.

PROLAPSE OF THE UTERUS.

The multiplicity of operations for prolapse of the uterus indicates that no single operation has been found which is always satisfactory; and when the variety of anatomical conditions is considered it is not to be expected that one method of procedure will suffice. Lenormant and Petit-Dutaillis⁷ describe an operation which is suitable for a certain number of cases. It is completed by a colpo-perineorrhaphy which exhibits no new feature. The treatment of the cervix and the anterior vaginal wall is the characteristic element. The operation consists of an extensive quadrilateral resection of the anterior vaginal wall, in fact, nearly one-half of the entire circumference of the vagina, and a high amputation of the cervix. It is, therefore, applicable only to those cases in which there is incomplete prolapse of the uterus, with hypertrophy of the cervix. The prolapse is cured by amputating somewhat more of the cervix than projects from the vulva and building up the perineum to give additional support to the stump of the uterus which is left. No effort is made to support the uterus from above. It is suitable, therefore, only in those cases in which an abdominal operation is inadvisable or refused and the body of the uterus still remains in the pelvis.

Guthrie and Whiteis⁸ describe a simple method for curing prolapse of the uterus, whether complete or incomplete, which presents the disadvantage, however, that the possibility of future pregnancy must be removed. The principle is to supply a large surface over which support is afforded to the uterus by suturing the body of the uterus into the abdominal wall between the recti or outside of them. The operation is usually attributed to Kocher and in its application the authors vary some of the details. While such an operation may fix the fundus perma-

nently, and in some cases also cure cystocele and rectocele, the general experience would point to the necessity of accessory operations below to support the bladder and rectum more firmly than can be done by a lifting process from above.

As a result of Nyulasy's⁹ experience, he holds that the chief structures supporting the uterus are its ligaments, principally the cardinal ligaments, and that the pelvic floor is of secondary importance. He has devised an operation in accordance with this view, for the cure of prolapse of the uterus, which has, in a general way, the same effect as an operation advocated by Dudley some years ago, though the operative procedures are different. In each case it is by bringing the base of the broad ligament, the cardinal ligament, forward on the cervix, that the support is obtained. Nyulasy opens the abdomen, frees the bladder from the uterus, dissects out the cardinal ligaments, making sure of the position of the ureters, and sutures each ligament to the cervix anteriorly by a silk thread. In his diagram he shows a single suture of silk catching both ligaments and a bit of the cervix. The round and utero-sacral ligaments are also shortened.

The advantages are (1) practical absence of hemorrhage, (2) the excellent immediate anatomical and almost certain good permanent results, (3) comparative absence of post-operative shock, and (4) the absence of raw areas as the incision between uterus and bladder is closed by a running suture of catgut.

RETRODISPLACEMENT OF THE UTERUS.

Byford¹⁰ says the operation which anatomically has proved most satisfactory in bringing the fundus forward in cases of retrodisplacement of the uterus is that known as the Alexander. In certain cases it needs to be supplemented by other procedures as shortening the utero-sacral ligaments or the use of a pessary for a short time following operation. But it is least likely to do harm and give rise to complications later. The objection to it, and formerly this was its greatest recommendation, is that the peritoneal cavity is not opened and thus intra-peritoneal complications cannot be dealt with, or sometimes even discovered. Byford has sometimes employed it even after making a median incision on account of such complications. But the operation he suggests makes the usual lateral incisions unnecessary. The important steps are first to make a loop of the intraperitoneal portion of the round ligament distal to a point about three centimeters from the uterine cornu. By suturing the sides of the loop together a double cord is made. The peritoneum is separated from the abdominal wall from the median incision to the internal ring, at which point it is punctured from without inward. Through this puncture the loop of round ligament is drawn and then sutured by a perma-

nent suture to the under surface of the abdominal wall, about one centimeter from the ring. The technic is simple and easy, the immediate effect is good and the intraperitoneal effect is practically as after an Alexander operation.

According to Reynolds¹¹ in many cases of retroversion of the uterus, the cervix not only lies closer to the symphysis than is normal, but either it cannot be displaced backward, or if it is so displaced by considerable force, it immediately springs forward when the traction or pressure is released. There is present what seems to be a shortening of the anterior vaginal wall, but the displacement forward of the cervix is due, not to the anterior vaginal wall, a soft yielding tissue, but to the underlying connective tissue and fascia, the Y ligament of Goffe. The retrodisplacement of the fundus in these cases has taken place because at the time of menstrual congestion the uterus tends to become straight, due to a simple hydrostatic law. If, then, there is relaxation of the round ligaments, or if the straightening is sufficient to push the fundus to the point where intra-abdominal pressure is exerted on its anterior wall, the fundus goes into retroversion.

The treatment of the fascia which fixes the cervix forward is the point of Reynolds' contention. He recommends a transverse incision in the vagina just anterior to the cervix, going deeply enough to completely sever the fascia. The incision is closed in a direction parallel to the long axis of the vagina. This lengthens the anterior wall of the vagina but the crucial point is the severing of the fascia. If this is done the cervix easily goes back in the pelvis and the operative procedure can be completed by any of the ordinary methods of suspending the uterus.

URINARY INCONTINENCE.

Kelly and Dumm¹² discuss urinary incontinence in women without manifest injury to the bladder, give a description of various operations noted in the literature, report a series of cases from Dr. Kelly's clinic and describe an operation which has given good results. The object of the operation is to narrow the opening of the bladder into the urethra, for often, and generally, it is the sphincteric action which is feeble. An oval denudation, four by three centimeters, is made in the vaginal mucous membrane over the neck of the bladder. The exact position of the internal sphincter is determined by introducing a Pezzer or mushroom catheter into the bladder and making traction until it impinges firmly on the bladder wall at the opening of the urethra. It can be easily felt through the wall of the bladder after the denudation has been made. At this point the tissue on each side of the median line is grasped by two or three mattress sutures of silk or linen thread and approximated under the urethra. The closure is made with a continuous suture of fine catgut. The operation in Kelly's hands has

given complete control in a large percentage of cases, and may be performed under local anesthesia if indicated.

UTERINE ENDOSCOPY.

The desirability of seeing the inside of the uterus has many times appealed to the gynecologist, for other methods of investigation so often leave the operator in doubt as to whether a hysterectomy is or is not indicated. Bimannual examination, the uterine sound, digital examination (rarely possible) leave much to be desired. Heineberg¹³ describes a uterine endoscope which consists of (1) endoscopic tube, (2) irrigating attachment, (3) obturator, and (4) lighting attachment, and presents a preliminary report of a few cases which he has examined. The normal findings are given and the technic described. Dilatation of the cervix to 46 French is necessary for satisfactory introduction of the endoscope. In the presence of pregnancy or acute inflammation the procedure is contra-indicated. General anesthesia is necessary on account of the dilatation of the cervix, but perhaps local anesthesia can be made to suffice. While its use as a routine is not likely to be of much value, there are certain cases in which it might be a very valuable adjunct in diagnosis.

LEUCORRHEA.

Curtis¹⁴ has carried out a thorough study of a series of cases of chronic leucorrhea making bacteriological examinations and employing various methods of treatment. In non-parous women, purulent discharge is rare apart from gonococcus infection. In parous women additional factors play a part, as infections associated with pregnancy, altered anatomical relations acting as a predisposing factor, and increased secretion of mucus. Purulent discharges come chiefly from the lower portion of the tract and rarely from the body of the uterus. In virgins the vagina contains few bacteria except the large Gram-positive vaginal bacillus described by Doederlein. In married women bacteria of various kinds and in varying numbers are found. But in infected cases profuse purulent discharge and many bacteria are found often.

Smears and cultures from leucorrheal discharges show a preponderance of anaerobic bacilli. While streptococci and staphylococci are occasionally found and the pseudo-diphtheria bacillus is as yet of unknown significance, a Gram-positive diplococcus is a constant finding. The gonococcus is of course of great clinical importance but it is often difficult to distinguish in vaginal smears. Perhaps its rôle in chronic disease is in preparing the soil for the leucorrhea-producing anaerobic bacteria.

In considering treatment, certain features should be emphasized: (1) The uterine cavity tends to remain free from bacteria; (2) excessive mucus not only increases the amount of

discharge but also acts as a culture medium for the bacteria; (3) the discharge usually originates in the lower portion of the tract; (4) in most cases there is a decreased local vitality and an associated low grade infection.

Therapy, therefore, should be directed to the improvement of the lowered resistance of the genitalia. Not only may lacerations need operation, but systemic conditions demand attention. There should be strict avoidance of treatment which is not definitely indicated or which will injure the tissues. Curettage of the uterus should not be performed. The cervix, however, may be dilated to give better drainage. Douches would seem to be ill-advised, and tampons have been generally discontinued. Scarification of the cervix and cauterization with silver nitrate, 20%, followed by dry powder may diminish the secretion from this source. Residual gonococci may require specific treatment and are difficult to dislodge. Vaccine treatment has been on the whole the most satisfactory method of treatment, giving a fair percentage of cases cured. A most encouraging feature of the vaccine treatment is the relief of backache and general malaise. The various powders give immediate improvement but there is a marked tendency to recurrence.

INOPERABLE CARCINOMA TREATED BY HEAT.

Percy¹⁵ again calls attention to the value of heat in the treatment of inoperable carcinomata of the uterus, which as a matter of fact comprise a large percentage of all the cases seen. In spite of the vast amount of study of cancer we still know too little of it to institute etiological therapy and we have to fall back on some means of destroying the growth. It has been found that in spite of the unduly active proliferation of cancer cells, they are more susceptible to the influence of certain injurious chemical and physical agents than are normal body cells. One of these injurious influences is radioactivity. But for several reasons the field of application is limited though as yet these limits have not been exactly defined. Another agency that will inhibit and destroy carcinoma is heat. In recent years this ancient method has been tested in the laboratory, and it has been found that in vitro cells from malignant growths are killed at a lower temperature or are killed more quickly at a given temperature than are normal body cells. It was noticed, too, by Vidal that in several patients with a temperature above 104°, tumor growths were arrested. This led to animal experiments which confirmed Vidal's clinical findings. As a result, Vidal put forth the statement that experimental methods of treating cancer have been effective only when there has been a febrile reaction on the part of the patient. Perhaps the cases of malignant growths which have disappeared after an attack of erysipelas are to be explained in this way. It is found, however, that the margin of safety between the heat necessary to destroy the car-

cinoma and that dangerous to the patient is small. Methods of raising the general body temperature are therefore impracticable. The only agents which have been found so far worthy of consideration are hot air, hot water, steam, electro-coagulation, fulguration and the actual cautery. Hot air, hot water and steam have too little penetrating power. Electro-coagulation requires a special apparatus, a refined and delicate technic and is difficult to control exactly. Fulguration is more satisfactory but perhaps its effects are from heat alone. Still more satisfactory than any of these, on account of the simplicity of apparatus and relatively slight expense, is the actual cautery. By means of special devices in the way of a controlled electric heating iron, a water cooled speculum and a vaginal dilator, inoperable carcinoma of the uterus can be treated with much better results. It is important not to use intense heat as that causes charring and greater likelihood of complication afterward. Several applications may be made and the procedure would be useful as a preliminary to radical abdominal operation. In one case noted by Percy, no carcinoma was found in serial sections eight months after treatment in accordance with this technic. The use of the curette should not be combined with the cautery as the curette tends to cause metastases. As occasionally a late hemorrhage has occurred after the treatment, it may prove advisable to tie the uterine or even the internal iliac arteries previous to the heat treatment.

VAGINAL AMPUTATION OF THE CORPUS UTERI.

The use of this operation is increasing and series of cases are reported by Jung¹⁶ and by Loehnberg.¹⁷ The chief indication is bleeding from the uterus, usually with no obvious cause, which has resisted other forms of treatment. From an economic point of view it is generally to be preferred to x-ray or mesothorium, and it gives a certain cure without much operative risk. The danger of malignant disease in the stump is not great and the method is to be preferred to vaginal total extirpation. The symptoms of the menopause were less marked than after the removal of the ovaries. In some cases the menstrual function persisted, but with greatly diminished flow, and in general the results are very satisfactory.

EUGENICS AND GYNECOLOGY.

Veit¹⁸ calls attention to the folly of hasty conclusions and ill-advised legal methods of control advocated by some "eugenists." While in theory eugenics demands action, in practice there is as yet too profound ignorance of heredity to make it clear just what action should be taken. The occasion for Veit's discussion of the subject was the presence in his clinic of two patients, one of whom, a chondrodystrophic dwarf of 35 gave birth by Cesarean section to a fine normal child, while the other, a girl of 18,

"pretty as a picture," gave birth naturally to a dead anencephalus. The paper does not lend itself well to condensation but it is a rather comprehensive plea for making haste slowly in the matter of practical eugenics and is to be commended for the wise sanity to be expected of one of Veit's experience.

INFANTILE UTERUS AND PREGNANCY.

The condition of infantile uterus and appendages is generally regarded as giving a bad prognosis for pregnancy. Elliott,¹⁹ however, reports a case in which, following treatment, pregnancy ensued. Another physician had told the patient that she could never have a child as "the uterus was about the size of an English walnut and the ovaries were not palpable." Though the patient was 27 years of age and had been married five years, she had menstruated only three or four times in her life and then only slightly. Corpus luteum tablets were given for several weeks, with massage of the uterus. As the patient noticed very little change, she discontinued the treatment. Three months later the lutein tablets were again started. About two months later pregnancy began and the patient was in due time delivered of a normal child. Before the pregnancy ensued there had been increased menstrual flow and some increase in the size of the uterus as well as a slight change in the general outlines of the body toward a more pronounced female type.

HIGH RECTO-VAGINAL FISTULA.

A case presenting this rather unusual condition with several interesting features is reported by Eden²⁰ and discussed at length. The patient, aged 41, was admitted to the hospital soon after her fifth confinement, which had been an easy low forceps delivery, complaining of complete incontinence of feces. At first all the fecal material passed per vaginam; later some escaped per anum. Following the fourth confinement the patient had been operated on for prolapse and extensive laceration of the cervix. Examination showed that the uterus was fixed, anteverted, and the cervix which had no posterior lip apparently opened into the fistula. The fistula admitted two finger tips and presented its greater diameter transversely to the vagina. The size and inaccessibility of the fistula and the fixing of the uterus indicated the difficulty of the operation. First a preliminary colostomy was performed. This was very satisfactory for the lower bowel collapsed and was easily kept clean though after three weeks the fistula had shown no sign of healing. Hysterectomy seemed indicated as it would give further assistance in exposure and suture, and the abdominal route was selected. The uterus, including all that was left of the cervix was removed. The fistula was then closed transversely to the long axis of the bowel and the first line of suture covered by a flap of vagina. The peritoneal cavity was then

closed off completely from the area below. The operation was long and the patient left the table in some shock but rallied well. The colostomy was doubtless an important factor in giving the fistula opportunity to heal and was closed four weeks after the closure of the fistula by resecting two and one half inches of the gut and doing an end to end anastomosis. Three months later the condition of the patient was quite satisfactory.

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Book Reviews.

A Manual of Personal Hygiene by American Authors. Edited by WALTER L. PYLE, A.M., M.D. Sixth edition, revised and enlarged. Philadelphia and London: W. B. Saunders Company.

The fourth edition of this now familiar work was reviewed in the issue of the JOURNAL for August 11, 1910 (vol. cxiii, p. 263); and the fifth edition in the issue for September 26, 1912 (vol. cxvii, p. 439). This sixth edition has been enlarged twenty-seven pages by minor additions and by the incorporation of a new chapter on the hygiene of infancy. The ten contributing authors remain the same as heretofore. The number of illustrations is increased from 131 to 138. The book maintains its former standard of excellence and there is nothing to add to the opinion of it expressed in our previous review.

Sleep and Sleeplessness. By ADDINGTON H. BRUCE, A.M. Boston: Little Brown & Co. 1915.

This monograph in the "Mind and Health Series" edited by the author, presents a study of the causes, nature and phenomena of sleep from the standpoint of the modern psychologist. The subject of dreams and the supernatural is carefully considered, together with other disorders of sleep and the causes and treatment of insomnia. The book aims to be not merely a scientific presentation but a work of practical helpfulness to the reader, and should thus be

of interest to the intelligent non-professional person in his effort, through correction of disordered sleep phenomena to arrive at a healthier, happier and more efficient life.

The Nursing and Care of the Nervous and the Insane. By CHARLES K. MILLS, M.D., Professor of Neurology in the University of Pennsylvania. Third edition revised by the author, assisted by N. S. YAWGER, M.D., Instructor in Neurology in the University of Pennsylvania. Philadelphia and London: J. B. Lippincott and Company. 1915.

This revised third edition of a standard manual on the nursing of neurologic and psychiatric patients aims to bring the original to date on the basis of newer developments in the knowledge of epilepsy and various of the mental diseases, and in accordance with more recent methods in non-restraint. The volume contains also useful anatomy and physiologic data, and is illustrated by several new charts and diagrams of electric apparatus. The motor point plates are from Dr Cohn's work on electro-diagnosis and therapeutics. Instruction regarding hydrotherapy is not included in this work. Like the original, this edition is based on the substance of the author's teaching in the training school for nurses at the Philadelphia Hospital and at the Woman's Hospital of Philadelphia. It should continue to serve its useful purpose as a text-book of special nursing.

A Text-book for Midwives. By JOHN S. FAIRBAIRN M.A., B.M., B.Ch. (Oxon.), F.R.C.P. (Lond.), F.R.C.S. (Eng.). With 3 plates and 104 illustrations, 5 in color. London: Henry Frowde and Hodder and Stoughton. 1914.

This text-book for midwives is in reality a text-book on obstetrics by an eminent British obstetrician. Assuming the midwife to be a desideratum in civilization, it could earnestly be hoped, though hardly expected, that she should live up to the knowledge and teaching of this admirable monograph. In European countries the midwife is probably a permanently integral part of the medical and social structure of the community. But in America the midwife is an anomaly and an anachronism; and though she has been introduced by and among the immigrants of our alien population, it is earnestly to be desired that she should not become an established factor in our professional and racial development. The existence of the midwife concomitantly with the physician involves the recognition of a dual standard which is incompatible with the dignity of the profession and the welfare of the public. Dr. Fairbairn's well written work in the series of Oxford medical publications could well be employed as an elementary text-book in medical schools, but as a text-book

for midwives it should have no field for use in this country.

A Manual of the Diseases of Infants and Children. By JOHN RUHRÄHL, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Fourth edition. Illustrated. pp. 552. W. B. Saunders Company. 1914.

This fourth edition of a standard manual of pediatrics contains numerous minor changes from the original, with the addition of an article on pellagra in children, a new chapter on drug eruptions, a full account of the Binet-Simon test for the mentality of children and description of the use of the Soy bean and various newer methods in infant feeding. The book is well illustrated with 176 text figures and should continue its valuable service as a text-book for medical students and others.

Studies from the Rockefeller Institute for Medical Research. Vol. XX. New York: The Rockefeller Institute for Medical Research. 1915.

This volume, like its predecessors, consists of reprints of articles recently published as the result of investigations at the Rockefeller Institute. The present series consists of fifty-five papers, in English and German, in the fields of pathology, bacteriology, physiology, pharmacology, chemistry, biology and clinical medicine. Particularly to be noted are the studies of Flexner and others on epidemic poliomyelitis; of Noguchi, on the cultivation of the so-called trachoma bodies; of Rous and others on chicken tumors; of Van Slyke, on the fate of protein digestive products in the body; of Loeb and Lloyd, on artificial pathogenesis. The volume continues the important body of contributions made by the Rockefeller Institute to the progress of medical science.

The Ninth Report of the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis. Philadelphia, Pa., 1915.

This volume is made up of reprints of articles published in various medical journals on the general subject of tuberculosis. It includes articles by Dr. Paul A. Lewis and others on Experimental Pulmonary Tuberculosis in the Dog, Experimental Tuberculosis of the Cornea, The Function of the Spleen in the Experimental Infection of Albino Mice with Bacillus Tuberculosis, and the Iodine Content of Tuberculous Tissues. Dr. H. R. M. Landis writes on The Medical Aspects of Pulmonary Surgery, Tuberculosis and the Public Health, The Health Aspects of the Clothing Industry and of the Pottery Industry, and The Diagnosis of Tuberculosis in

Early Life. Dr. George Ketterolf writes on The Larynx in One Hundred Cases Dying of Pulmonary Tuberculosis.

Aside from its intrinsic worth, the volume is interesting as a record of the scientific and useful work which this institution is accomplishing.

Factors Affecting the Health of Garment Makers. By H. R. M. LANDIS, M.D., and JANICE S. REED. Fifth Report of the Henry Phipps Institute for the Study and Prevention of Tuberculosis. Philadelphia, Pa. 1915.

Dr. Landis records the results of his investigations of health among garment workers under the following chapters: Rise of the Problem, Condition of Factories Studied, Racial Characteristics, Physical Condition of Employees, Physical Ailments as Related to Age and Trade Processes, Home Environment, Habits of the Workers, Wages and Trade Life as Related to Factory Conditions, Tuberculosis, Fatigue, Eye Conditions Encountered among "Pressers," and concludes with a general summary and recommendations. The information which the book contains is carefully and systematically arranged and clearly stated. As a record of conditions to be encountered in social and public health service, it should prove a valuable addition to the already existing literature on this subject of industrial hygiene. The volume contains a number of photographs taken of typical conditions in factories as the author found them, and a large number of tables and charts.

A Text-Book of the Practice of Medicine. For Students and Practitioners. By HOBART AMORY HARE, B.Sc., M.D. Third edition revised and enlarged. Imperial octavo, 969 pages with 142 engravings and 16 plates in colors and monochrome. Philadelphia and New York: Lea and Febiger. 1915.

Dr. Hare has made very extensive changes in his third edition and has given us essentially a new book based on the general outlines of his previous edition. He has adhered to his original purpose of making the book reflect his personal views wherever possible. For example—in his discussion of the treatment of typhoid fever he outlines his own management of the diet and makes no reference whatsoever to the use of the liberal diet originally advocated by Shattuck, and carried to the extent of forced feeding by Coleman. References to the literature are not infrequent, but do not comprise a feature of any importance in the book. On the whole, like its predecessors, this edition is a sound exposition of the practice of medicine, based chiefly on the writer's wide experience in hospital and private practice. A very complete index is a valuable feature.

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GROWTH AND DISTRIBUTION OF POPULATION.

THE recently issued unofficial preliminary figures of the 1915 decennial census of Massachusetts present interesting data with reference to the population of this State. This census, which was taken as of April 1, 1915, shows a net increase of approximately 8.3% in the population of Massachusetts since the United States census of 1910. During the quinquennium for 1905-1910 the increase was 12.1%, and from 1900 to 1905 only 7.1%. The total population of the state is now 3,646,768. Massachusetts is now the sixth state in population, being exceeded by New York, Pennsylvania, Illinois, Ohio and Texas.

The population of Boston is stated as 725,823 as compared with 686,000 in 1910 (including Hyde Park, a gain of 39,823, approximately 5.8%). It had been estimated by census officials at Washington that the population of Boston on April 15 should be 733,802. Failure to reach

this expected figure leaves Boston still the fifth city in size in the United States.

In Massachusetts there are thirty-five cities and their approximate total population is now 2,537,949, about 69.3% of the total population of the State. In 1910 these cities contained 69.7% of the total population, indicating a slight, though very slight, tendency toward decentralization during the past quinquennium. The population of the metropolitan district known as Greater Boston is reckoned as 1,556,982, as against 1,423,429 in 1910. This metropolitan district includes 38 communities in addition to Boston. Of the cities outside Greater Boston only two, Salem and Gloucester, have decreased in population and these but slightly. The greatest gain in population was 33% in Chelsea, representing the rehabilitation of the city following its disastrous conflagration. A similar rehabilitation may doubtless be expected hereafter in Salem. Of the towns in the Commonwealth, over 70 show a decrease of population during the past quinquennium.

There has been an increase of population in every county of the State. This increase was greatest in Suffolk County, with Middlesex and Hampden ranking second and third. In Barnstable, Dukes and Nantucket Counties the increase has been but a few hundred. The distribution of population by counties in 1915 and 1910 is shown in the following table:

	1915	1910
Barnstable	28,578	27,542
Berkshire	114,162	105,259
Bristol	344,490	318,573
Dukes	4,878	4,504
Essex	459,868	436,477
Franklin	48,172	43,600
Hampden	260,424	231,369
Hampshire	69,164	63,327
Middlesex	724,974	609,915
Nantucket	3,153	2,902
Norfolk	200,765	187,506
Plymouth	155,864	144,337
Suffolk	806,205	731,388
Worcester	426,131	399,657

Totals for the State, 3,646,768 3,366,416

In his statement accompanying the publication of these figures Mr. Charles F. Gettym, director of the Massachusetts Bureau of Statistics, speaks particularly of the relation existing between immigration and the growth of population.

"The most obvious reason for the slowing down in the rate of increase during the latter half of the decade 1905-1915 is found in the recent notable decrease in immigration, which began even before the outbreak of the European War. For the United States fiscal year ending

June 30, 1907, immigration reached high-water mark, both in the number admitted to the United States and in the number destined for Massachusetts, a condition visibly reflected in the census figures for 1910. What the number will be for the year ending June 30, 1915, we do not yet know, but some idea of the shrinkage in population growth during the past year in Massachusetts alone may be obtained from the fact that during the eight-month period from the outbreak of the war, Aug. 1, 1914, to April 1, 1915, when the census was taken, the net increase in the population of the state from immigration (assuming that aliens giving their destination as Massachusetts, actually settled here), was, according to the reports of the United States Bureau of Immigration, 4430, as against 44,496 during the corresponding eight-month period of the preceding year. Immigration as affecting Massachusetts, however, began to show a perceptible decrease even before the outbreak of the war, for during the year ending June 30, 1914, the number giving their destination as Massachusetts was 8000 less than during the preceding year."

For some time it has been a matter of observation, and, among the thoughtful, of concern, that, although the population in this country has been steadily growing, this growth has been due largely to immigration and to the prolific fertility of recent immigrant families rather than to increase in the older native stock. In fact, the declining birth-rate among older American families stands already next to that of France, and is only slightly surpassed by that of Great Britain. Of the foreign white stock in the United States in 1910, the largest group was that of the English and Celtic, who numbered 10,037,420, representing 12.3% of the total white population of the United States in that year. The German group stood second, numbering 8,817,271, or 10.8%. The Italian group stood third, with 2,151,422, or 2.6%; the Polish group fourth, with 1,707,640, or 2.1%; and the Hebrew fifth, with 1,676,762, or 2%. Of the remaining persons of foreign white stock the majority were of various Slavic races. These data are based on a bulletin of the United States Census Bureau issued in May, 1914.

All these persons of foreign white stock constitute nearly 40% of the total white population of the country, and the remaining 60% a rapidly increasing proportion is made up of the first and second generations of the children of alien immigrants.

The relative proportion of the sexes in different parts of the country presents facts of interest. In the United States as a whole there

are 2,692,288 more men than women. This excess is determined chiefly by the population of the Western states. In the Pacific states the ratio of males to females is 129.5 to 100, and in the mountain states 127.9 to 100. In Massachusetts there are 55,920 more women than men. Rhode Island has an excess of 1,982 women. The only other states in which women predominate are Maryland and North and South Carolina. In Boston there are 11,171 more women than men, and in Philadelphia 28,082 more women. In New York, Chicago, St. Louis, Minneapolis and Pittsburgh, there is a very slight excess of men. Among the inhabitants of all the large cities in the United States there is an excess of 368,979 men over women, whereas in the rural districts there is an excess of 2,323,309 men.

These phenomena of population and their fluctuations perhaps derive their chief interest for physicians from the suggestions which they afford of the probable racial future of this country with the future development of the various ethnic groups of which its population is composed.

THE MORPHOLOGY OF THE CORPUS STRIATUM.

In the issue of the JOURNAL for March 18, 1915, we published an item largely quoted from the work of Dr. S. A. K. Wilson in the *Lancet* and in *Brain*, on the function of the corpus striatum. Dr. Wilson concluded that the corpus striatum exercises a fairly definite function and that it is subject to a degenerative disease process clinically evidenced by a fairly definite train of symptoms known as the lenticular syndrome.

In the issue of the *Journal of Nervous and Mental Diseases* for June, 1915, Dr. James H. Lloyd approaches the same subject from the somewhat different standpoint of morphology. The corpus striatum, he points out, is, from an evolutionary point of view, one of the oldest portions of the mammalian brain. "It was, in fact, the whole brain in the arthropods, being known today as the supra-esophageal ganglion, and it continued to do duty as practically the whole fore-brain in the earliest vertebrates up to and including the fishes." Our knowledge of the morphology of the corpus striatum rests largely on the work of Gaskell (*The Origin of Vertebrates*, 1908):—

"In his treatise on the origin of the vertebrates Gaskell undertakes to establish the thesis that the vertebrates were developed from the arthropods, and that the cerebrospinal axis of the vertebrates was originally developed around and including the gastrointestinal tract of this lower form. If you will stop to reflect a moment, you will recall that in the arthropods, which include the crabs and the spiders, as well as in still lower forms, such as the insects and the segmental worms, the nervous system lies ventrad of the gastro-intestinal tract. It consists of a chain of ganglia lying beneath the creature's ventral surface; whereas in the vertebrates just the opposite is true, for in them the cerebrospinal system is located dorsad of the stomach and intestine. For a long time this was a stumbling block to evolutionists, for the problem stared them constantly in the face how the vertebrates ever succeeded in getting their nervous system on top of their bellies. The evolutionists resorted to all sorts of expedients to explain this apparently inexplicable thing; and such an eminent morphologist as Owen even proclaimed his belief that before the arthropod could have developed into a vertebrate, the creature must have turned over on its back."

As a matter of fact it appears that the nervous system of the vertebrate was evolved by building up nervous tissue around the old gastro-intestinal tube of the arthropod. The infundibulum thus represents the old esophagus, the pineal gland is the median eye, the corpus striatum the supra-esophageal ganglion, the cerebral ventricles represent the arthropod's stomach, and the spinal canal its intestine. Lloyd, therefore, regards the corpus striatum largely as a vestigial organ and doubts whether it continues in the human brain to exercise any functions whatever. There is little or no histologic evidence of any direct connection between the cortex and the corpus striatum. He is inclined, therefore, to doubt the clinical validity of the lenticular syndrome as a disease entity. Even Wilson admits that "there is no vestige of evidence that in man the corpus striatum is capable of assuming a long lost function and of acting vicariously for the motor pallium." Lloyd believes that the symptoms caused by lesions of the lenticula are merely symptoms derived from various affections of the internal capsule and that the lenticula has no other relation to the capsule than contiguity and common blood supply. He does not regard the corpus striatum as a coordinating center for speech, since morphologically and phylogenetically it could have no such function.

PEDIATRICS IN BOSTON.

THE June issue of the *Archives of Pediatrics* is published as a special Boston number and consists of seven original articles by pediatric members of the profession from this city. The first article, by Dr. John L. Morse, deals with Boston as a pediatric center and describes particularly the pediatric clinical facilities of this city and the opportunities of instruction offered by the department of pediatrics in the Harvard Medical School. The second article, by Dr. Maynard Ladd, contains essentially the same material on the subject of homogenized olive oil and fat-free milk mixtures, in cases of difficult feeding, which he presented before the New England Pediatric Society in Boston on Feb. 26, 1915, and which was published in the issue of the JOURNAL for July 1. The third article, by Dr. Charles H. Dunn and Dr. William W. Howell, presents a discussion of the diagnosis and treatment of pyloric stenosis and pylorospasm, based upon the experience of the Infants' Hospital. The fourth article, by Dr. Richard M. Smith and Dr. Stanley Cobb is a clinical and pathological study of one hundred infants, being a correlation of the data of two summers' work on the Boston Floating Hospital. These data are summarized under the headings of the gastro-intestinal tract, urine and kidney, tuberculosis, lymph nodes, fatty livers, lungs and size of the stomach. The fifth article, by Dr. Fritz B. Talbot, is a study of the energy metabolism of an infant with congenital absence of the cerebral hemispheres.

In the sixth paper Dr. Philip H. Sylvester and Dr. Freeman H. Hibben present a clinical and laboratory study of the relation of the gas bacillus to infective diarrhea and other digestive disturbances in childhood. They find that the gas bacillus is not a normal constituent of the human infantile intestinal flora, but that its pathogenicity is apparently demonstrable in certain cases of infectious diarrhea, fat intolerance and chronic intestinal indigestion. They believe that the dietary treatment by means of unpasteurized fat-free, lactic acid milk, which imposes conditions unfavorable to the growth and activity of the gas bacillus, is rational, safe and more immediately effective than any other treatment hitherto advocated.

In the seventh paper Dr. Joseph I. Grover records a study of measurements of a number of normal children, especially of the leg and arm, and suggests some interesting deductions and

practical possibilities. By graphic and tabular record and comparison he finds that the circumference of the head and chest bear a much more accurate relation to the weight than to the age of the individual, whereas the arms and legs grow in a definite relation to the increase in height. This growth bears a closer relation to the height than does percentage of the height to the age. Age, therefore, he concludes, is a poorer basis for the comparison of any dimensions than are weight and height, since development and age are not constantly parallel.

This issue of the *Archives of Pediatrics* thus presents a variety of contributions illustrating the range of the clinical and laboratory material in pediatrics available in Boston; and it is a pleasure to acknowledge to the editors their courtesy to this city and its profession in the preparation and publication of this special number.

The important and significant practical conclusion from these observations is, of course, the extreme undesirability of the limitation of families to one or two children. If the normal family be held to consist of five children, the inferior firstborn may often be the ones who will subsequently perish in the struggle for existence; and if they survive they constitute only a fifth of the population where their inferiority is of diminished importance. With families consisting of only one or two children, however, the firstborn will ultimately come to constitute a half or more of the population, with the result of racial decline not only in numbers, but in physical and, perhaps, mental vigor. As a matter of fact there is contemporary evidence of the probable truth of this conclusion in the phenomena of greater physical efficiency and vigor observed among the more prolific as compared with the less prolific European races.

FIRSTBORN CHILDREN AND SIZE OF FAMILIES.

In the July number of the *Journal of Heredity*, the official organ of the American Genetic Association, is an article by Professor Karl Pearson of the University of London, presenting the statistics of several thousand cases analyzed to determine the physical and mental quantities of firstborn as compared with later children. From this study he reaches the conclusion that the firstborn are physically and mentally inferior and have a poorer resistance to various infections, especially tuberculosis. These statistics, it may be mentioned, have been borne out by a similar study recently made by Mr. John H. Chase among students at Amherst College.

Professor Pearson further finds that there is an abnormally high percentage of firstborn children among the feeble-minded, insane, epileptic and criminal. It should be remembered, however, that this fact, like the higher percentage of still births among firstborn, may be accounted for partly by dystocia, partly by the predilection of congenital lues for first children. Mr. Chase's figures refer chiefly to physical vigor as evidenced by gymnastic strength tests, which represent probably the progressively increasing size often observed in the successive children of a family. For various reasons, however, it does appear that firstborn children are likely to be in various ways inferior to their later brothers and sisters.

ROCKY MOUNTAIN SPOTTED FEVER.

In another column of this issue of the JOURNAL we publish a brief clinical summary by Dr. Pope of Nevada of the present knowledge of Rocky Mountain spotted fever, that striking typhoidal disease of insect transmission. This disease has been for many years endemic in certain portions of Montana, Idaho, Nevada and Oregon, and recently, as noted in the weekly bulletins of the United States Public Health Service, it has made its appearance in Washington. Five cases of the disease were reported in Washington during May of this year, in Lincoln County, and on July 6, one case in Douglas County. During June there were five cases with four deaths in the Bitter Root Valley, Montana; and from March 1 to June 1 there were 206 cases with eight deaths in the southern part of Idaho. The disease is serious, usually with a high mortality, and its treatment, until some specific be discovered, is symptomatic and prophylactic. By way of prevention, the most effective method is dipping the sheep to destroy the ticks which, in springtime, infest their fleece, for although the tick infests other animals, the sheep seems to be the principal host. The development of the knowledge of this disease is an important achievement to the credit of American scientific medical research and is owed chiefly to Dr. Rucker of the United States Public Health Service and to Dr. Rickets, who

subsequently lost his life by infection with typhus fever which he was studying in Mexico. The hope of ultimate eradication of spotted fever, as of other diseases dependent for their transmission upon intermediate insect carriers, rests upon the possibility of exterminating this carrier and isolating all active cases of the disease.

MEDICAL NOTES.

THE WEEK'S MORTALITY IN NEW YORK.—Figures prepared by the Department of Health show that during the past week 1376 deaths were reported in the Greater City of New York, an increase of 90 over the number reported during the corresponding week of last year. Forty-two of these are accounted for by the increased population; the other 38 to the virulence of certain diseases, particularly measles, lobar and bronchial pneumonia.

Bright's disease showed an increase over the corresponding week of last year for the first time in several weeks. Nor was this increase offset by a saving of lives from chronic heart disease.

Despite the warm weather that prevailed during the latter part of last week, the death rate from diarrheal diseases was decidedly lower than during the corresponding week of last year.

The increase in the number of deaths last week was evenly distributed amongst all age periods, the group under five years showing the largest proportion, in which group there was an increase of 43 deaths. The group under 1 year of age escaped with a small increase of 7 deaths.

The death rate for the first 29 weeks of 1915 is 13.94, as compared with 14.42 for the corresponding period of last year.

FATALITY OF FOOT AND MOUTH DISEASE.—A report issued by the Pennsylvania Live Stock Sanitary Board on July 14 states that during the outbreak of foot and mouth disease last winter and spring, over 15,000 cattle and 13,000 swine were destroyed in that commonwealth. The cost of thus eradicating the disease in Pennsylvania was \$1,350,000, of which the United States Government pays one-half.

ESTABLISHMENT OF KEEN RESEARCH FELLOWSHIP.—Professor W. W. Keen has established the Corinna Borden Keen Research Fellowship in the Jefferson Medical College, the income from which now amounts to \$1000. The gift provides that the recipient of the Fellowship shall spend at least one year in Europe, America or elsewhere (wherever he can obtain the best facilities for research in the line of work he shall select, after consultation with the Faculty) and that he shall publish at least one paper embodying the results of his work as the "Corinna Borden

Keen Research Fellow of The Jefferson Medical College." Applications stating the line of investigation which the candidate desires to follow, shall be forwarded to Dr. Ross V. Patterson, Sub-Dean, Jefferson Medical College, Philadelphia, Pa.

Egyptian Vital Statistics.—The Egyptian government has recently published the vital statistics of its principal towns, governorates and provinces for the year 1914. "This report records 76,322 births (not including 2744 stillbirths) and 58,641 deaths. The birth rate is slightly below that of 1913—44.6 as against 45.1—but the natural increase is somewhat greater, for the death rate has fallen from 35.2 to 34.3. Typhus is responsible for the largest number of deaths attributed to infectious diseases, the total number of cases being 9350, the provinces of Daqahalia and Beheira each returning more than two thousand, with 2531 deaths. Smallpox is represented by 6788 cases and 1568 deaths, and measles produced 5045 cases with 2272 deaths. Only 219 cases of plague were reported, 50 of these from Port Said. Typhoid was responsible for 1966 cases and 612 deaths. The estimated population (July 1, 1914) was 1,710,857."

PREVALENCE OF PELLAGRA, PLAGUE, POLIOMYELITIS, SMALLPOX AND TYPHOID.—The weekly report of the United States Public Health Service for July 16 notes that during the week ended June 26 there were six deaths of pellagra in Charleston, S. C., and three cases of poliomyelitis with one death in New York City. During the same week there were twenty-one cases of typhoid fever with one death in New York City and twenty cases and one death in Charleston, S. C. There were also two deaths from virulent small-pox at El Paso, Texas, and two cases with one death at New Orleans, La. On July 7 a plague infected squirrel was found in California and on July 14 a plague infected rat in New Orleans.

INTESTINAL INFECTION AND SEWAGE DISPOSAL.—In a recent issue of the *Public Health Reports*, Dr. C. W. Stiles records the results of an investigation of the prevalence of intestinal infections in children as influenced by sewage disposal. He has taken for investigation a town in the coastal area of a Gulf Atlantic state with a total population of 30,000, the whites outnumbering the negroes. The city was but partly sewered. Twenty-five hundred white children and 1350 negroes were examined for worm parasites, the sexes in each division being about equal.

"The parasites, which could be acquired only through swallowing them and whose origin is human wastes, were found in 20% of the white girls, 49% of the negro girls, 34% of the white

boys and 47% of the negro boys. Throughout the tabulation the white girls have everywhere low rates, but even in the houses having sewer connections the rate of infection is about 19%. Those infections that were probably through the skin range from 20 to 30% in the white children in unsewered homes, 6 to 10% in sewered houses, while for negro girls the rate is below 5% and for boys less than 2%. These last figures, however, rest on comparatively small numbers.

"The conclusions of Professor Stiles from his investigation are that there is a vast amount of unconscious coprophagia in human beings, that it is a very variable amount even in the same community, and that the outhouse in thickly settled communities is a distinct danger."

MEDICAL ASPECTS OF GASTRIC CARCINOMA.—In connection with the cancer number of the JOURNAL on July 15 we are glad to call attention to an article on the medical aspects of gastric carcinoma by Dr. Joseph C. Bloodgood of Baltimore, appearing in the *Journal of the American Medical Association* on June 19. The observations noted in this article suggest that the true aspect of the result of surgical intervention in cancer of the stomach points with particular fatality to the fruitlessness of delayed treatment. In the series of 184 cases upon which Dr. Bloodgood's paper is based, 74% were already inoperable when first seen. The significance of this fact is obvious and should emphasize to the profession, as well as to the laity, the cardinal importance of the earliest investigation of obscure gastric symptoms in order to make surgical aid for incipient gastric carcinoma of practical avail.

VALUE OF CHAULMOGRA OIL IN LEPROSY.—In the issue of the JOURNAL for July 8 we commented editorially on the use of chaulmogra oil at Molokai in the treatment of leprosy. This oil is made from the seeds of *takatogenos kurzii* and is combined with camphor and resorcin for hypodermic administration.

In the leper colony at Culion, Philippine Islands, there were at the close of 1912, 2615 lepers. The report of the Philippine Commission for this year spoke as follows of the use of chaulmogra oil for their treatment.

"Chaulmogra oil, when taken continually over long periods of time, continues to prove most useful in treating the disease, and results in some apparent cures. Unfortunately, most persons experience difficulty in taking it.

"Twelve colonists who had been treated with chaulmogra oil were sent to Manila apparently cured of leprosy, but it was subsequently necessary to return two of them who had suffered relapse."

In March, 1914, the *Lancet* recorded the discharge by Dr. Victor G. Heiser from the San Lazaro Hospital for Lepers at Manila of two

patients who, after this treatment, had been free from manifestations of the disease for two years. A report from Manila on July 15 states that Dr. Mercado, a local Filipino physician has reported 80 cases of leprosy treated with chaulmogra oil of which 23 have been discharged as cured.

Despite the apparently favorable character of these reports the specific curative value of chaulmogra oil must await further and longer experimental trial and demonstration.

MEDICAL BROTHERHOOD FOR INTERNATIONAL MORALITY.—In the issue of *Science* for April 9, 1915, was published an address by Dr. S. J. Meltzer of the Rockefeller Institute for Medical Research on "The Deplorable Contrast between Intranational and International Ethics and the Mission of Medical Science and Medical Men." On the basis of the theories advanced in this address Dr. Meltzer has recently issued an appeal to physicians in the United States to join in the creation of a medical brotherhood for the furthering of international morality. To this end there has been formed a committee of 120 well known physicians and it is hoped that financial support may be obtained from the Carnegie Endowment for International Peace.

GREAT INCREASE IN FATAL AUTOMOBILE ACCIDENTS IN NEW YORK CITY.—Figures prepared by the Bureau of Records of the Department of Health show that during June, 1913, 34 persons were killed upon the streets of New York City by automobiles, an increase of 70% over the number of similar accidents that occurred during June, 1914. This increase is not at all exceptional; it is, on the contrary, only a reflection of the steady increase in this class of accidents that has been going on for several years, as is borne out by the following table:

	Manhattan.	The Bronx.	Brooklyn.	Queens.	Ridgewood.	C. I. C.
1910.....	63	13	25	7	3	111
1911.....	77	8	38	3	2	128
1912.....	120	14	44	9	1	188
1913.....	173	33	64	16	7	293
1914.....	168	30	86	22	4	310
1915 (6 months)...	104	14	24	8	2	152

The second half of the year always shows higher figures than the first half. The total number of accidents will therefore be considerably higher this year than in 1914.

During the first six months of 1915, 152 lives were needlessly sacrificed. Aside from the humanitarian side of the question, this loss of life entailed an immense economic loss, which has swollen to a still greater total by the numbers disabled temporarily or permanently. A conservative estimate is that one person in ten injured dies. Assuming this ratio to have held

good in this city during the six months of 1915, there were 1520 persons injured by automobiles.

According to the Health Department the cause of the increase is to be found in the increased number of motor cars in the city streets, and it calls on the people of this city immediately to attempt to secure uniform standards for all who operate motor vehicles, and to demand more stringent enforcement of existing regulations.

The department points out that the control of an automobile in the streets of New York is not a task for a child, an untrained amateur, a neurasthenic, an excitable person or a weakling. In the hands of such persons, a motor vehicle is an engine of death. It is the clear duty of the authorities, then, to see that the competency and trustworthiness of every would-be operator is satisfactorily established. How does the legislature perform this duty? By the enactment of a statute which requires no test of an owner's capacity, and which expressly prohibits any local authority from enacting supplementary protective regulations.

Under the highways law of the state of New York, any owner or any member of the family of an owner is permitted to drive a motor car. The question of mental or physical capacity does not enter; and yet there is not the slightest doubt about the risk involved.

In commenting on the increase in deaths from automobile accidents, Commissioner Goldwater said: "The Department of Health is helpless in the matter. What we need is legislation equal in effectiveness, equal in common sense and in humanity to that of other states. If the legislature is unwilling to enact protective regulations applicable throughout the state, then we ask that the hands of the Board of Aldermen and the Board of Health be untied, so that there may be adopted in this city, at least, an ordinance which will compel those who desire to operate motor vehicles on the streets of the city to submit to an adequate test of fitness as a condition precedent to the obtaining of a license or permit. We call upon the people of the city for their support in this altogether reasonable demand, which will be renewed with emphasis when the next legislature convenes."

PEVENTIVE MEDICINE IN THE UNITED STATES ARMY.—The latest annual report of the surgeon general gives a very gratifying account of the decline of disease rates in the United States Army for the year 1913. Smallpox and typhoid fever have been practically eradicated from the Army. The rate for malaria fell from 84.36 to 24.75. The admission rate for venereal disease for 1913 was 97.22. The rate for the previous year was 136.7, a decrease of about 30% in one year. A corresponding decrease for another year or two would bring the rate to about 40, that attained by the German army just prior to the outbreak of the war. In ten

years the rate of sickness from all causes fell from 1230 to 671, almost 50%. The death rate, however, has fallen but 30%. The number of men per 1000 excused from duty on account of illness now is less than half what it was ten years ago. Alcoholism in the army was at its worst in 1907. Since that time it has also fallen 50%.

ST. LOUIS EXPEDITION TO CENTRAL AMERICA.—On Monday of this week, July 26, there started from St. Louis, a scientific expedition from the St. Louis University to study tropical diseases in Central America. This expedition, which will proceed first to British Honduras, is in charge of Dr. Edward Nelson Tobey, instructor in tropical diseases at the University.

AMERICAN SURGICAL ASOCIATION.—At the annual meeting of the American Surgical Association held in June, 1915, at Rochester, Minn., it was voted to hold the next session at Washington, D.C., in 1916. The following officers were elected for the ensuing year:

President, Dr. Robert G. Le Conte, Philadelphia; vice-presidents, Drs. Charles L. Gibson, New York City, and Archibald MacLaren, St. Paul; secretary, Dr. John H. Gibbon, Philadelphia; recorder, Dr. John F. Binnie, Kansas City, Mo.; and treasurer, Dr. Charles H. Peck, New York City.

ALCOHOL AND THE FRENCH BIRTHRATE.—Report from Paris on July 19 states that an investigation has recently been made by Charles Benoit into the causes of the progressive depopulation of France. For this purpose he selected the Canton of Crenelly, in the Arrondissement of Caen, where the decline of population has been particularly notable. He believes that he has found a definite connection between the decreasing birthrate and the consumption of alcohol, particularly of cider brandy which is distilled and drunk by the natives in great quantity. The custom of taking brandy in coffee probably leads to a larger consumption of the former than would otherwise be the case.

"Whether drink may be considered the cause of the decrease in the birthrate or not, the progression of depopulation seems to have kept pace with the progression of alcoholism. Where the consumption of spirits was formerly a gallon and a half a year per capita, it is now more than three gallons, while the decreased birthrate traced back through many generations in the same families by Monsieur Benoit shows a decrease from an average of seven children a family in the nineteenth century to three in the twentieth."

In the department of Calvados which constitutes 1% of the population of France there are 4% of the total number of controlled distilleries in that country which in 1912 produced 170 gallons of pure alcohol, equivalent to 485

gallons of brandy, a rate of more than a gallon per capita. It is stated that in some communes the annual consumption of elder brandy approaches 10 gallons per capita.

ROCHESTER DENTAL DISPENSARY.—At a meeting on July 20 of the Rochester (N.Y.) Dental Society, there was announced a gift of \$300,000 from Mr. George Eastman for the erection in that city of a free dental dispensary.

EUROPEAN WAR NOTES.—Report from Washington, D.C., on July 17 states that as a result of the European War, American exports of medicine and surgical instruments have nearly doubled. It is estimated by the Bureau of Foreign and Domestic Commerce that during the year ended June 30, 1915, the exports of this class of goods amounted to \$35,074,000 in value as compared with a value of \$19,916,000 during the year ended June 30, 1914.

Report from New York states that Dr. F. H. Hodge of Knoxville, Tenn., reached this country on July 18, aboard the *Cymric* on his return from Liverpool. He stated that the maximum of typhus infection in Serbia was reached in March of this year when 48,000 cases were recorded. At present the number of cases is less than 1,000. Dr. Hodge is quoted also as saying that ten American Red Cross nurses have been transferred from Serbia to Malta where a military hospital has been established for the care of the wounded from the allied armies at the Dardanelles.

Report from Budapest by way of Geneva and Paris on July 16, states that during the week ended June 28 there were in Hungary 543 cases of Asiatic cholera with 281 deaths. Of these, 81 cases and 24 deaths were among soldiers.

It was announced in New York on July 19 that the American Red Cross is to establish an obstetric hospital in Serbia to be known as the Mabel Grouitch Hospital. It is expected that this institution will be in charge of Dr. Louise Taylor Jones of Washington, D. C., with Dr. Katherine H. Travis of New Britain, Conn., as her assistant.

In another column of this issue of the JOURNAL we publish an extensive statement of the rise in price of drugs since the outbreak of the European war. On July 23 it was further announced that antipyrin has advanced in cost from \$9.50 to \$13 a pound and caffeine from \$5 to \$8 a pound since July 1. On June 3, 1915, antipyrin was selling at \$6.50 and caffeine at \$4 a pound.

On July 24 the total of the New England Belgian relief fund amounted to \$265,775.10; and that of the Polish fund to \$48,941.01.

BOSTON AND NEW ENGLAND.

RECORD ATTENDANCE AT MILK STATIONS.—The Boston Milk and Baby Hygiene Association reports that last week it cared for the largest number of babies in its history, the total number being 612, which was more than double the number of the previous week, 302.

OPEN AIR SCHOOL ON CASTLE ISLAND.—There has been opened at Fort Independence, Castle Island, an open air school attended by 125 pupils of three South Boston schools. It is maintained by the Association for Control of Tuberculosis, Instructive District Nursing Association and the Boston Dispensary. Miss Katherine French of Boston is in charge. The children are provided with a lunch and all the milk they can drink and are charged five cents a day to help defray expenses. Contributions for carrying on this important philanthropy may be sent to W. G. Wendell, treasurer, 60 State Street, Boston.

POLIOMYELITIS IN VERMONT.—The first well marked outbreak of poliomyelitis in Vermont occurred in the year 1891 when there were 126 cases at Rutland with 18 deaths. Since that time the disease has apparently become endemic in that state with occasional sporadic outbreaks of which the most extensive was that of 1913 when there were 200 cases. The cause of this recent development of poliomyelitis in a state hitherto apparently free from it is uncertain, but may probably be traced to some carrier who settled in Rutland and from whom the infection has since been spread, very possibly by insects.

WATER SUPPLY OF BOSTON AND VICINITY.—The Metropolitan Water Works, which supplies with water the cities of Boston, Chelsea, Everett, Malden, Medford, Melrose, Newton, Quincy and Somerville, and the towns of Arlington, Belmont, Lexington, Milton, Nahant, Revere, Stoneham, Swampscott, Watertown and Winthrop, a total population of 1,777,770, required for its maintenance during the past calendar year the sum of \$413,078.95. The quantity of water supplied to the Metropolitan Water District during this time was 107,036,100 gallons, an equivalent to 94 gallons for each person. This quantity was 3,188,400 gallons more than the average daily consumption of the preceding year.

ADAMS NERVOUS ASYLUM.—The recently published thirty-eighth annual report of the Adams Nervous Asylum in Jamaica Plain, Mass., gives the following information regarding its affairs for the year ending May 1, 1915.

The number of patients under treatment during the year was 225 (51 men and 174 women). Of these, 40 (6 men and 34 women) were in the Asylum May 1, 1914, and 185 (45 men and 140 women) were admitted during the year. There were discharged as recovered, 10; relieved, 120;

not relieved, 44; declining treatment, 2. Two patients died, and 47 (14 men and 33 women) were remaining in the Asylum April 30, 1915. The daily average number of patients was 44 (men, 12; women, 32).

The average cost per week for each patient, including all payments charged to current expenses, was \$24.01.

The amount received from patients was about 38% of the expenses.

FOOT AND MOUTH DISEASE IN MASSACHUSETTS.—It is announced by the Massachusetts State Bureau of Animal Industry that this Commonwealth is now free from the epizootic of foot and mouth disease and that the quarantine imposed in November, 1914, is now removed except for the transportation of cattle to and from Watertown and Brighton. Farmers whose stock has been slaughtered have been urged by the Bureau to restock their barns in order that it may be decided whether or not the disease still lurks in the buildings. This is being done generally and no new outbreaks have yet been reported.

RETURN OF THE FIRST HARVARD SURGICAL UNIT.—A majority of the members of the first Harvard Surgical Unit have returned safely to the United States aboard the French steamship *Rochambeau* landing at New York on July 13. This unit sailed from New York on March 17 aboard the *Canopic* and since April 1 has been in charge of the University service in the American Ambulance Hospital at Neuilly, Paris. Dr. F. A. Collier, who went out with the unit, has joined an English unit for service in a British military hospital and Dr. George Benet has taken service in an Anglo-French Red Cross hospital near the firing line north of Compiègne.

DR. CREEL AS BOSTON HEALTH COMMISSIONER.—In the issue of the JOURNAL for May 13 we announced the acceptance by Dr. Richard H. Creel of the United States Public Health Service of an appointment as health commissioner of the city of Boston. In the issue of the JOURNAL for June 10 we published a further statement containing a letter from Dr. Creel in which he expressed the necessity of declining this appointment on account of his health. In the issue of the JOURNAL for July 1 we published another announcement of Dr. Creel's decision again to reconsider his action and to accept the appointment for one year beginning July 1, 1915. It now appears, according to report from Washington, D.C., on July 14, that Dr. Creel's health is not sufficiently good to permit his undertaking this work at present. Without definitely declining the appointment, therefore, he is to go on furlough for vacation after which a decision as to his acceptance will be definitely made.

Dr. Creel has recently been engaged in the work of plague prevention by extermination of

rats in New Orleans, since the outbreak of the disease in that city last summer. During this time there have been trapped and killed in New Orleans 396,151 rats of which 244 were found infected with bubonic plague. Of those infected 216 were Norway rats, who numbered 202,570 of the total number killed. The last human case of plague at New Orleans was reported on October 4, 1914.

MELROSE HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Melrose Hospital Training School for Nurses were held at Melrose, Mass., on July 21. The principal addresses were made by Dr. Walter R. Bowser, secretary of the Massachusetts State Board of Registration of Nurses, and by Miss Mary Beard, director of the Boston Instructive District Nursing Association.

RECENT HOSPITAL BEQUESTS.—The will of the late William Bradford Weston of Milton, Mass., which was filed for probate on July 14 in the Norfolk Probate Court at Dedham, Mass., contains bequests of \$15,000 each to the New England Hospital for Women and Children, the Massachusetts Homeopathic Hospital, the Massachusetts General Hospital, the New England Peabody Home for Crippled Children, the Perkins Institution for the Blind and the Vincent Memorial Hospital. These legacies, however, do not come into effect until twenty years after the death of the longest lived of 31 personal beneficiaries named in the will for whom funds are held in trust. The will further establishes a trust fund of \$6000 to be held by the Massachusetts Hospital Insurance Company for the term of 100 years. At the end of this time the accumulated fund is to be divided into two parts of which one shall be used for the erection in Milton, Mass., of a small free fire-proof hospital to be known as the Weston Hospital. Seven-eighths of the other part are to be used for the erection of a similar hospital at Duxbury, Mass.

The will of the late Mary J. Neas of Jamaica Plain, Mass., which has recently been filed for probate, contains bequests of \$500 each to the Boston Nursery for Blind Babies and to the Faulkner Hospital, Jamaica Plain.

Obituary

RICHARD CLEMENT LUCAS, M.B., M.S. (LOND.), F.R.C.S. (ENG.).

MR. RICHARD CLEMENT LUCAS, who died on June 30 at Oakland, Midhurst, Sussex, England was born there in 1846. He studied medicine at Guy's Hospital and obtained the degree of M.B. from the University of London in 1871. He immediately became demonstrator and later lecturer in anatomy, and in 1875 was appointed assistant surgeon at Guy's Hospital. At the

same time he was developing a large and successful private surgical practice in London, devoting himself first to ophthalmic surgery, and later in particular to renal surgery. He was for a time vice-president of the Royal College of Surgeons of England and in 1911 delivered the Bradshaw lecture upon various problems in heredity. He was an occasional contributor to the columns of the *Lancet*. As a surgeon he was essentially an anatomist and in the teaching of anatomy he found, perhaps, his most enthusiastic activity. He is survived by two sons. The following vivid sketch of his personality by Sir Arbuthnot Lane appears in a recent issue of the *Lancet*.

"By the death of Richard Clement Lucas the profession loses an eminent surgeon and a remarkable man. His was a distinct personality which cannot be ignored when the surgery of the late Victorian era is under review, and his name will be always associated with the early development of renal surgery, in which subject he took a continued interest. He served Guy's Hospital for nearly half a century, and devoted an enormous amount of time and energy not only to his hospital duties but to the education of the students, in every one of whom he took a great personal interest. Quite a number of his colleagues owe their success in life to the stimulus which he applied to them by his interest and advice in the early stages of their careers. He used to ask the first year's men to meet him in order that he might discuss with them collectively and individually the best course for each to pursue in his work, and few who were present at one of those talks will forget the strong impression that he made upon the young student. Full of ambition himself, and indefatigable in work, he certainly possessed a wonderful power of inducing energy in others. In his prime he was a masterly operator—bold, rapid, and certain. Nothing pleased him more than a deep and extensive dissection in the neck, in which his dexterity and anatomical knowledge had full play. In his work he was always teaching the student, and the interest of his lectures was notably enhanced by the excellent lightning sketches with which he illustrated them. He wrote a large number of papers on anatomical and surgical subjects, in many of which he displayed remarkable originality."



Miscellany.

RISE IN THE PRICE OF DRUGS.

REPORT from New York on June 22 states that there has been a general rise in the price of a large number of drugs since June first of this year, chiefly on account of the disturbance of the market involved by the European War. The cost of quinine, for instance, has recently been

advanced 32 cents per pound. This drug now costs 30 cents per ounce in hundred ounce quantities and 35 cents per ounce for smaller amounts.

"English interests have purchased upwards of 350,000 ounces of quinine sulphate in the American markets in the past four months. This quinine has been utilized in combating malaria, coughs, colds and other maladies prevalent in the European war zone. It is understood that England as purchasing agent for the Allies has placed forward orders for the great bulk of the United States quinine production to the end of this year. One recent shipment of 25,000 ounces of quinine which was forwarded from New York to London on the steamer *Inkum* was lost through the torpedoing and sinking of that steamer on June fifth by a German submarine.

"Further reasons for the unabated strength now shown in quinine and all its minor salts lie in the fact that the shipments of cinchona bark from the Island of Java to Europe for the first five months of the current year have only amounted to 2,215,000 kilos, compared with 3,103,500 kilos in the corresponding five months last year and 2,781,200 kilos in 1913, and 2,311,500 kilos for the corresponding period in 1912. The shipments for the month of May were only 450,500 kilos against 612,000 kilos in May, 1914, 488,000 kilos in May, 1913, and 689,000 kilos in May 1912. It is thus clear that the shipments of basic material have been naturally entailed and that this has not been the real reason for the sharp advance in prices for the salts at the London and Amsterdam salts auctions where a unit of 1 $\frac{1}{4}$ d is now generally being realized.

"There has also been a rise of 25 cents per pound in the price of opium which now costs \$7.25 per pound in cases, powdered opium being \$8.25 per pound.

"While ostensibly basing their advance asking figures for this narcotic on reports that the Turkish Government had imposed an embargo on all shipment of the gum from Turkish possessions, it was believed that the action of the importers was based more generally on the knowledge that customers will buy more readily on a rising than a declining market. The consensus of opinion among the trade is that the advance in this article is not warranted as the stock in the United States is now at the largest point in the history of the drug trade. It is also known that the necessity of observing all the requirements of the Harrison Anti-Narcotic Law as well as the supplementary state statutes of similar character has materially restricted the buying of this article."

"The history of the drug trade reveals no more astounding chapter than that which has been written the past few weeks. Fine medicinal as well as technical drugs and chemicals have advanced to a point where values are 500- to 5000-fold inflated. Speculators and second-hands are virtually reaping a harvest. Manufacturers are in a majority of incidences sold

out of certain wanted materials for periods ranging from six months to a year ahead. So far as imported goods are concerned, it is known that harvesting and manufacturing operations in leading French, German, Russian and English drug centers are either at a minimum or are practically suspended. The high record values prevailing in the domestic markets are justified to some extent, however, as export demand has also been in evidence and has reduced the spot supplies of most materials to negligible proportions. Exact statistics are not yet available, but it is known that during the first two months of the current year the total export of drugs, chemicals and medicines from the United States amounted in value to \$7,460,000 against \$3,986,000 in the same time in 1914, and \$4,157,000 in the corresponding two months of 1913.

"While drug values in general have fluctuated in accordance with supply and demand considerations it is contended by some well known interests that present prices do not portray conditions prevailing. Epsom salts are a fair example of an article which is available in the United States in plenitude. Prices have, however, been jacked up to a basis of \$3 per hundred weight within the past three weeks against a price of \$1.75 per hundred weight on June 1. Caustic soda, an alkali product used generally in soap making, reflects the demand from Europe as well as the domestic explosive trades at its present high record figure of 3.25 (*a* 3.50 per ewt. Various factors have sold out their entire output of this material for months to come.

"All quicksilver preparations have been subjected to further sharp advances and dealers are now offering them very sparingly. Santonine, the active principle of Levant wormseed, grown and manufactured in Russia, has undergone an advance of \$13.50 to \$23.50 per pound since June first, owing to the reports of a great shortage in this year's crop of the seed. Russian isinglass, utilized in clarifying beverages, has also advanced sharply and at its present level of \$6 per pound is no longer regarded as a commercial article.

"A continued shortage of muriate of potash, utilized in manufacture of bicarbonate of potash, bichromate of potash, carbonate of potash, chlorate of potash, prussiates, saltpetre and a host of other technical chemical preparations, has sent prices for the preparations mentioned to still higher levels and values are now merely nominal, as holders ask whatever price their conscience dictates. A development of interest yesterday was the announcement by manufacturers of boric acid of a further advance of 34 cent per pound, making the revised figures for crystals and powdered 9 (*a* 10 cents per pound. A fresh advance of 1/2 cent per pound was also announced by manufacturers of borax which was held at 5 $\frac{1}{2}$ (*a* 6 cents per pound."

Report from New York on July 14 states that the prices of Norwegian cod liver oil have also

advanced to \$100 a barrel from \$45, an increase of \$55, or 122%.

"The sharp elevation of prices follows cable advices that the cod fishing season abroad closed with a reduction of 14,000,000 fish, or 21%, noted in the total catch as compared with a year ago. Cables also conveyed the information that Germany had bought heavily of the 1915-1916 output and that over 50% of the total production had been absorbed in this way. It is said that a group of European speculators have succeeded in obtaining control of all but a meagre proportion of the remaining stocks and that cod liver oil is destined for still higher prices.

"The market flight of cod liver oil does not find adequate justification in comparison of final fishing returns from Norway, the total output for the year just closed having been 66,800,000 fish, which yielded 45,620 barrels of refined oil as against 81,500,000 fish or 49,285 barrels of oil for the former season. The fundamental explanation lies in the abnormally heavy demand for Norwegian cod liver oil for German mechanical war requirements, chiefly as a lubricant in the various lines of motor service, the use being even extended to aeroplanes through the refining process eliminating the stearine. The medical application of the oil was also found especially beneficial in relieving the painful physical effects of extreme cold upon the German soldier.

"Prompted by the elevation of prices for the various brands of cod liver oil, including Holme's, Devoe's, Duval's, Dervell's and Isdahl's to \$100 per barrel, there have been sharp speculative operations in the New York market, and all lots available below \$75 per barrel have been snapped up. Evidence of the lightness of American stocks and the consequent restrictions in extensive speculation here are furnished in the record of our imports for the first six months of the current year, which amounted to only 1700 barrels as compared with 4200 barrels, 2800 barrels, and 3900 barrels for the corresponding periods of 1914, 1913 and 1912 respectively.

"Of the current production of 45,620 barrels, the Lofoten fishing, usually relied upon for the finest grades of refined oil, has contributed about 11,000 barrels from 16,000,000 fish as against 8200 barrels from 12,000,000 fish last year. Fishing operations in Norway were not only handicapped by loss through seizure and sinking of trawlers the past season, but stormy weather created difficulties hard to overcome."

Following this phenomenal rise of value in Norwegian oil there has been a rise of Newfoundland oil from \$40 to \$50 a barrel. This oil though not so refined in quality as that in Norway, will probably now be extensively employed as a substitute.

"There has been a marked improvement in Newfoundland's refining process during the past year or so and this has placed it on a better competitive basis with the Norwegian grades

The season in Newfoundland gets into headway with the close of the season in Norway, and possibilities of profit under existing prices should hasten operations, especially in view of the fact that England is expected to draw heavily on this year's yield."

It is also announced that the price of thymol has advanced from \$2.00 to \$12.00 a pound, an increase of 500%. "The advance is due to the scarcity of supplies and the active demand from manufacturers of antiseptic washes and dental preparations, who report considerable difficulty in securing sufficient thymol for their users, being forced to bid in competition with exporters who have been buying freely on orders from France and England.

"Germany has up to this time enjoyed a distinct monopoly in thymol manufacture. The article is produced from anjowan seed grown in India. Germany's requisitions on the anjowan seed production in 1914 were 6990 ewts., out of a total production of 9784 ewts., while in 1913 her takings were 19,055 ewts. out of a total production of 21,650 ewts., and in 1912 her takings aggregated 14,210 ewts. out of a total of 15,515 ewts. produced. Thus far this season Germany has taken over 6000 ewts. of the Indian anjowan seed production and the United Kingdom has only secured 382 ewts.

"It is impossible to estimate accurately what the production of thymol in Germany amounts to. It is reckoned, however, that the output of thymol from anjowan seed is about 11 $\frac{1}{4}$ %, so if it is assumed that the whole of the seed shipped to Germany was used in the manufacture of the drug, the production in that country from Indian seed would amount to 177 ewts. in 1911-12, 238 ewts. in 1912-13, and 87 ewts. in 1913-14.

"As in the case of other drug and chemical products, the high prices for thymol have stimulated production in other parts of the world. A despatch from Bengal, India, says that a laboratory worker in the Bengal Chemical and Pharmaceutical Works has been the first to produce thymol. This despatch was contradicted, however, in advices from London which stated that thymol has been made in certain districts in India for the past sixty years. This despatch stated that the manufacture of the article had been discontinued when the low prices for the German product made it unprofitable some years ago, but that Indian interests had again commenced to manufacture it for their own requirements, and had shipped large quantities as well one shipment of twenty tons being underway to English firms."

All domestic manufactures of mercurial preparations have also advanced from three cents to eight cents a pound. "The great bulk of all quicksilver which has found its way from California to New York within the past few weeks has been taken by the Allies for manufacture of ulmicate for percussion caps. Quicksilver values have again advanced for this reason, and little or any is now offered here at below \$100

and \$105 per flask of seventy-five pounds. Yesterday's action of domestic manufacturers brings quotations of soft mercurials in fifty-pound lots and over to a basis of 72 cents per pound for blue mass, 74 cents per pound for blue pills, 74 cents per pound for mercury and chalk, 90 cents per pound for mercurial ointment '1/2' and 80 cents per pound for blue ointment or mercurial ointment '1-3.' The new schedule on hard mercurials in fifty-pound lots is calomel, \$1.43; corrosive sublimate, powdered, \$1.20; corrosive sublimate, crystals, \$1.35; mercury bisulphate, \$1.21; red precipitate, \$1.56; red precipitate, powdered, \$1.66; white precipitate, \$1.66, and white precipitate powder, \$1.71."

The cost of potassium bromide has now risen to \$1.50 a pound.

These figures are of interest to physicians since they illustrate the effect upon the drug market of the disturbing economic conditions attending war. So far as possible in prescribing, physicians should endeavor in the interests of their patients to avoid those drugs whose prices have been most unduly advanced, employing equivalent substances wherever possible.

TREPHINING AMONG THE PERUVIAN INDIANS.

A RECENT issue of the *New York Times* calls attention to a detailed description by Dr. Joseph C. Thompson of the United States Navy Medical Corps of the methods of trephining practiced by the Peruvian Indians early in the Christian era. This description is based on a study of over 5000 pre-Columbian Indian skulls collected by Dr. Hrdlicka, curator of the division of anthropology of the National Museum at Washington, D. C.:-

"These ancient Peruvian Indians observed that once in a while warriors who had received a serious injury of the head recovered instead of dying. In the course of time they learned that these recoveries were due to one of several causes.

"The skull, in the living subject, is very resilient, and it may have happened occasionally that when a piece of the skull wall was displaced or dented, thus compressing the brain, this offending fragment suddenly sprang back into place, thereby relieving the symptoms and affording the patient a chance to recover. Among primitive peoples some very curious ceremonial rites take place over the dying. These rites, at times, assume the character of a vigorous massage of the body, and they even tapped the head of the dying man with a baton. This latter action might readily result in a lucky repair of the broken skull.

"Then, again, after a warrior had lain unconscious for many days, the splintered and broken bits of bone might necrose and be sloughed off at

the bottom of an open sore. This also might have resulted in a recovery.

"When the medicine men had observed these phenomena a few times, their next logical step would be to attempt to assist nature in her processes of restoration. They did this by prying the displaced fragments into place and by digging out, often with their finger tips, splintered bits of bone. Another of their observations was that a wound with sharp, clean-cut edges would heal much more rapidly than one with a rough or jagged contour.

"The result of their observations was that they attempted to convert the rough, irregular gashes in the skull into smooth, clean-cut surgical wounds. This was usually done by scraping the edges of the break with the sharpened flint.

"They further advanced in the science of physical diagnosis to the point of observing that, now and then, a warrior died from a really small fracture of the skull. This led them to operate quickly, and some of the slender pieces of sharpened flint may have been used to raise the crushed portion of the skull, after an incision had been made."

Correspondence.

PRUDENTIAL HOSPITAL ASSOCIATION COMPANY.

BOSTON, June 28, 1915.

Mr. Editor: In regard to letter of Horace D. Arnold, M.D., in your issue of June 24th, the impression is conveyed that a gentleman of the Prudential Hospital Association Co. had made an unauthorized use of the Doctor's name.

We beg to state explicitly the Dr. Arnold, whose name our agent gave as reference, was Dr. Seth Arnold, a member of our hospital staff.

This physician too hastily reached the erroneous mental conclusion that there was only one Dr. Arnold (Horace D.), in Boston, whereas our agent knew only the one on his list, viz.: Dr. Seth Arnold.

This explanation shows no wrong intent on our part and through your kindness we trust that you will give space in your medical journal to correct the wrong impression this physician gave to Dr. Horace D. Arnold.

Yours very truly,
PRUDENTIAL HOSPITAL ASSOCIATION CO.
F. O. BLAZIER, President.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JULY 17, 1915.

CONTRIBUTIONS.

Muskegon Oceanic Medical Society, Muskegon,	
Mich.	\$ 25.00
Dr. Robert F. Taylor, Philadelphia, Pa.	5.00
Dr. Francis Reder, St. Louis, Mo.	10.00
Dr. Charles D. Lockwood, Pasadena, Cal.	5.00
Dr. J. W. Ellengerger, Harrisburg, Pa.	5.00
Dr. Charles N. Dowd, New York, N. Y.	25.00

Receipts for the week ending July 17th, \$ 75.00

Previously reported receipts..... 7625.84

Total receipts..... \$7700.84

Previously reported disbursements:

1625 standard boxes of food @ \$2.20... \$3575.00

1274 standard boxes of food @ \$2.30... 2930.20

353 standard boxes of food @ \$2.28... 804.84

Total disbursements..... \$7310.04

Balance \$390.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

RECENT DEATHS.

DR. ROBERT HUGH MCKAY DAWBARN of New York, who died in that city on July 18, was born in Westchester County, N. Y., in 1849. He had been for many years professor of surgery at Fordham University Medical School and was connected with several New York hospitals. He received the degree of M.D. from the New York College of Physicians and Surgeons in 1881. He was appointed instructor in minor surgery at the College of Physicians and Surgeons in 1885, and in 1887 became professor of surgery and anatomy in the New York Polyclinic School. He was a frequent contributor to medical periodicals and in 1902 was awarded by the Philadelphia Academy of Medicine the Samuel E. Gross prize for the best original work in surgery during the previous six years. He was a member of many medical and scientific societies. He is survived by his widow, one daughter and two sons.

DR. FRANCIS DELAFIELD of New York City died of apoplexy on July 17 at Noroton, near Stamford, Conn. He was born in New York City on August 3, 1841, the son of a physician. He received the degree of A.B. from Yale University in 1860 and that of M.D. in 1863 from the New York College of Physicians and Surgeons. In 1866, after studying abroad, he became curator to the Bellevue Hospital, where in 1875 he was appointed visiting physician and in 1886 consulting physician. He was also pathologist at the Roosevelt Hospital and at the New York Eye and Ear Infirmary and was professor of pathology and of the practice of medicine at the New York College of Physicians and Surgeons. He was one of the founders and the first president of the Association of American Physicians in 1886. He has been distinguished as a medical writer as well as a practising and consulting physician. The best known works of which he is author are "Handbook of Post-Mortem Examinations and Morbid Anatomy," "Manual of Physical Diagnosis," "Studies in Pathological Anatomy," "Diseases of the Kidneys," and "Handbook of Pathological Anatomy and History." He is survived by three daughters and one son.

DR. CHARLES PARKER HOOKER, who died of pneumonia on July 21, at Fortune Rocks near Biddeford, Me., was born in Springfield, Mass., on September 18, 1855, the son of a physician. After obtaining his early education in the local schools he undertook the study of medicine and received the degree of M.D. in 1879 from the Harvard Medical School. He early became associated with the Springfield Hospital and with the Mercy Hospital in Springfield, and maintained his connection with these institutions throughout his busy professional life. He was also for thirty years county physician of Hampden County. He was a charter member and former president of the Springfield Medical Club and a director of the Springfield Academy of Medicine. He was also a member of the American Medical Association and a Fellow of the Massachusetts Medical Society. He was a Councillor from the Hampden District from 1911 to 1914, having joined the Massachusetts Medical Society in 1879. He is survived by his widow, one daughter and one son.

The Boston Medical and Surgical Journal

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August 5, 1915

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THE TREATMENT OF ECZEMA WITH SPECIAL REFERENCE TO THE USE OF VACCINE AND THE PART PLAYED BY BACTERIA IN ITS ETIOLOGY. REPORT OF FIFTY CASES.

BY LEON S. MEDALIA, M.D., BOSTON.

INTRODUCTION.

THIS paper is based upon a study of about 50 cases of most protracted types of eczema. Practically all of these cases failed to respond to the ordinary methods of treatment, and applied for vaccine treatment as a last resort. The majority of these (46 cases) have been treated by me in private practice. Only a few (5 cases) have been followed up at my clinic at the Mt. Sinai Hospital. All but fourteen of these cases have been treated with autogenous vaccines.

While it is true that those cases treated in private practice have had the benefit of general treatment, such as dietetic, hygienic and the use of powders and ointments to alleviate the local condition alongside of the vaccine treatment, the cases at the out-patient clinic, on the other hand, received practically no other treatment but vaccines. The results obtained in this latter group of cases, in my opinion, are marked contributory evidence of the value of vaccines in this disease.

Only a few illustrative cases, the bacteriological findings, and the results obtained, will be cited in the body of this paper. The detailed

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records of all the cases will be found at the end of the paper so that every one interested can draw his own conclusions.

ETIOLOGY.

I shall not enter upon a discussion of the various theories and opinions presented by different men from time to time upon the etiology of eczema. The principal thing I am interested in is the part played by bacteria in this disease as far as I could ascertain from my own work and from a careful study of the literature, both clinical and bacteriological.

The particular point in the etiology that I will try to make clear is that which Stelwagen¹ in his latest text-book on diseases of the skin considers the "unknown quantity" of eczema. He says, "It is a well known fact that certain external irritants will provoke a dermatitis in a large number of those exposed; whereas in most of these it will be simply a passing dermatitis; in others—usually a small minority—it turns out to be a true persistent eczema which has been provoked; what this necessary something is which is present in such individuals and not in others, and not constantly present in many of these, is the unknown quantity in eczema of which we are still ignorant."

What this "unknown quantity" is, ("this necessary something") suggested itself to me by the bacteriological findings of eczema and by the results obtained in this disease with the bacterial vaccines. Briefly, I believe this "unknown quantity" to be:—

1. The presence on the surface of the skin,

at the time that the dermatitis occurs, of an organism capable of causing a secondary infection;

2. The bacterial infection of the dermatitis by scratching, and

3. The lowered resistance of the individual and the lack of immune substances or antibodies in his blood to resist this secondary infection by the particular invading organism at the time when the dermatitis occurs.

The original dermatitis may be caused by chemical irritants in the individual's occupation as shown by Knowles,^{*2} or by poisoning with various food substances, or by mental and nervous disturbances, principally anxiety.

The particular organism which I believe causes the continuance of the dermatitis changing it into an eczema, that "unknown quantity" in the etiology, I found culturally to be usually a staphylococcus aureus, sometimes mixed with streptococcus and rarely mixed with staphylococcus albus. Although the raising of the resistance by vaccine had not in some cases prevented a recurrence of the dermatitic or primary lesions of eczema, it has prevented it from continuing as an eczema, the dermatitic lesions subsiding, as a rule, in a day or two without going on to the real eczematous condition.

Thus, while the primary cause of eczema may be any of the various etiologic factors capable of producing a dermatitis with or without the formation of vesicles, the real reason for the keeping up of this dermatitis, rendering it what we know as an eczema, is the secondary bacterial invasion. This claim is fairly substantiated, first, by the clinical findings, *i.e.*, the results obtained in this disease by vaccine and the behavior towards the vaccine treatment by those of my cases that have had recurrences, as will be cited later; and, second, by the bacteriological findings, *i.e.*, the absence of bacteria in the primary lesions or closed vesicles and the abundant growth obtainable from the later more chronic lesions, crusts or pustules of the true eczema. (Similar bacteriological findings have been reported by Veillon,³ Kreibich,⁴ and a number of other investigators.)

BACTERIOLOGICAL FINDINGS.

Technic. Cultures were obtained in the usual way, using a number of swabs. The material was collected from unopened vesicles and crusts, from pustules and scales. It was then planted on glucose agar, beef blood serum and glucose bouillon. Occasionally, when thought necessary, special media were also used, principally blood agar. A number of cultures were made on glucose agar (usually fifteen to twenty) from which an autogenous vaccine was prepared in the ordinary way. As a rule, there was no difficulty in obtaining an abundant growth for the preparation of the autogenous vaccine within 24 hours,

if the cultures were obtained with the proper bacteriological precautions. Whenever a streptococcus was found mixed with the staphylococcus it was necessary to have it isolated in pure culture for the preparation of a separate autogenous vaccine. This, of course, took a longer time (two to four days) than when the staphylococcus alone was found present. When cultures were obtained from freshly formed vesicles, if the surface skin was properly cleansed with alcohol and allowed to dry before opening them and the proper aseptic precautions used in obtaining the material, the cultures were found invariably sterile.

Results. The cultural findings of the fifty-one cases of eczema to be reported were as follows: 34 cases showed staphylococcus *P. aureus* in pure culture; 2 cases showed staphylococcus *P. aureus* mixed with staphylococcus albus; 6 cases showed staphylococcus *P. aureus* mixed with streptococcus; 3 cases were found sterile; 6 cases no cultures taken.

Staphylococcus aureus, according to the above findings, may be said, therefore, to be the organism always present in eczema, while in only six of the forty-two cases (that showed growth) or little less than 2%, showed streptococcus mixed with the staphylococcus aureus.

The presence of streptococcus should always be kept in mind because it can very easily be overlooked on account of the abundant growth of the staphylococcus overgrowing it. The streptococcus, when present, if overgrown by the staphylococcus, can be detected only by the microscopic examination of smears made from the bouillon cultures or from the water of condensation of the solid culture media. It is of special importance not to overlook the streptococcus in connection with vaccine treatment where the results depend so much upon the proper autogenous vaccine.

VACCINE TREATMENT.

Method of Procedure. The cases treated in private practice were all given a thorough physical examination, preceded by a careful history. The urine, feces and blood were also examined. An attempt was made to find out if possible the underlying cause for the primary dermatitis or the beginning of the eczema. Special inquiry was made into the idiosyncrasies of the patient to various food articles in the diet; the effect of anxiety and worry upon the skin and the particular work done by the patient in his occupation or daily life—not being satisfied merely with a general statement of his occupation.

The examinations of the feces revealed the lack of proper mastication when present, the excess of carbohydrate, fat or meat intake, and the presence or absence of chronic constipation. Special attention was paid in the blood examination to the presence of low coagulability and of leukemia or other forms of anemia. The examination of the urine was made, with special ref-

* From a study of 4142 cases of eczema Knowles claims to have found a quarter of these to be due to external causes definitely. One-sixth of this affection he claims is caused by the occupation of the individual.

erence to high urea or indicanuria and to rule out kidney lesions.

Inquiry into the habits and wearing apparel of the patient revealed as a rule the underlying mechanical reason for the eczema keeping up in certain places, such as the continuous irritation by clothing (woolen underwear), girdles and other wearing apparel; also the continuous picking at the face and scalp, or picking at the fingers and hands, all which habits had to be warned against and stopped before the patient could be really cured. Cultures were obtained as described under the previous heading, and an autogenous vaccine was prepared. Cases that applied for treatment during an acute exacerbation or those who had been suffering from an acute generalized eczema were advised to enter a private hospital, where they could be kept under close observation. The complete rest in the hospital, both mental and physical, and absence from the home surroundings, I consider an important factor in the good results obtained in such cases.

It was found early in the application of this method of treatment in eczema that autogenous vaccines were necessary and a still more important point was the need to administer what would be considered ordinarily tremendous doses up to 6000 million organisms or over, in one dose. Otherwise there would be no noticeable change in the condition clinically nor would there be much local reaction.

DOSAGE AND METHOD OF ADMINISTRATION.

From a recent article in the *Journal of the American Medical Association* (Greely, Feb. 6, 1915) it would seem that there is still a great need to emphasize the details of vaccine administration. I was astonished to see the attempt made in that article to lay down one set of rules with reference to dosage to be applied to all organisms and all kinds of infections. The fact remains that every kind of infection is a law unto itself, differing with each organism causing the infection as well as with each type of disease produced by the same organism. To say, for instance, that it is rare that "one (dose) smaller than 100 million organisms need be given as a first dose," without qualifying the kind of vaccine, is certainly erroneous. While it is true that in cases of staphylococcus vaccine the initial dose need not be smaller than 100 millions, in cases of pneumococcus, streptococcus, *B. Coli*, mucosus capsulatus and gonococcus the maximum initial dose should never exceed 25 millions.

Similarly, do we have to consider the different types of lesions. While, for instance, in a case of furunculosis, acne, or eczema the initial dose of staphylococcus vaccine may be 250 million organisms for all of them, in cases of furunculosis no higher subsequent dose than 1000 millions should be given, while in acne or eczema doses as high as 6000 or even 10,000 millions must be

given before any marked clinical change for the better is noticed.

As to the temperature being used as a guide to treatment, I can say that I have never found it useful. In the large number of cases I have had in various hospitals, where a morning and evening temperature chart was kept, I have thus far found in the temperature nothing that could be of use as a guide to the dosage or interval in the administration of vaccine. There would be an occasional drop in the morning temperature to 97°, but I could see no definite relation between these drops in temperature to the vaccine administration as indicating a negative phase. Such drops in temperature were noticed where the vaccines were omitted for several weeks, and again in cases where there was no vaccine treatment at all. Neither would the temperature be a practical guide, even if it were of any use in the treatment of ambulatory cases.

Personally I have used, and advised the various physicians by whom I was called in consultation to use, the local reaction as a guide both to dose as well as interval. Thus beginning with the minimum dose (25 million in all bacteria excepting staphylococci). In the latter the initial dose may be as high as 250 million in an average adult), it is gradually increased by 50% of the initial dose until the patient shows a local reaction. The inoculation should not be repeated until after the local soreness has subsided. If the local reaction was marked—marked local swelling and soreness of the upper arm, lasting more than 24 hours—the dose following should be decreased rather than increased. No general reaction should ever occur. When it does, it is a sign of an overdose. The intervals are guided by the local reaction in the arm in those vaccines that are prone to cause a local reaction, e.g. staphylococci, *B. Coli*, mucosus capsulatus. The interval may, therefore, be twenty-four to forty-eight hours in the first few injections and later once every five to seven days. Some organisms, e.g. gonococcus and pneumococcus, do not produce much of a local reaction, if any. The clinical response has to be depended upon alongside of the local reaction in such cases. The negative phase coincides with a change for the better. The reinoculation should take place when the change for the better begins slightly to wane. As a rule the dose may be repeated every twenty-four hours in acute cases and three to five days or seven days in subacute or chronic cases, always using the alternate arms (fleshy part of upper arm). In the acute cases, principally systemic, or in eye infections, only small doses must be used in order not to obtain much of a negative phase, because a set-back or a marked negative phase here might mean the loss of sight or life. It is particularly in those cases that experience and full knowledge of immunology is absolutely necessary, not only to obtain good results but also not to produce harmful effects. In the subacute and chronic diseases an overdose or a mistake in the interval is, as a rule,

from the very nature of the condition, not followed by any serious consequences.

The initial minimum dose may be definitely established. The maximum dose may also to some extent be set down according to the type of organism used and the kind of lesion treated—not to the same definiteness, however, as the minimum dose. The interval and frequency of re inoculation, upon which really depends the success or failure of this method of treatment—that can only be gained, I believe, by considerable experience. The best the general practitioner can do is to take a culture and have an autogenous vaccine prepared in a reliable laboratory, preferably by a man who makes a specialty of this mode of treatment rather than by one who knows the laboratory end of it only. The value of this procedure to the practitioner is three-fold. First, he has a bacteriological diagnosis of the infection. Second, he can keep in touch with the man of experience during the progress of the treatment, consulting with him whenever necessary, thus giving the patient the benefit of the best procedure. And, third, he has a vaccine prepared from the organisms responsible for the infection. The expense of the autogenous vaccine, which can be prepared in the majority of cases within twenty-four hours, need not be any more, if as much, as the stock vaccine, and from the standpoint of results it certainly is the vaccine of choice.

The foregoing are really nothing more than general suggestions. Each case is a law unto itself, and considerable experience is necessary to accomplish the desired results with this method of treatment.

The details of the application of the vaccine in the disease under discussion—eczema—will be found in the illustrative cases following:—

ILLUSTRATIVE CASES.

The following cases are cited to illustrate the actual mode of application of vaccines in this disease—method of procedure, doses given, interval used, and results obtained.

CASE 33. M. S., female, 32 years, May 15, 1913. Had a dry sealy eczema for the last ten years. First started on right arm. Later the back of the neck became involved. Eczema has been there ever since. Has now an acute exacerbation for the last eight weeks with burning and itching all over the body. Examination showed skin of chest dry, inflamed and sealy. Eczematous patches also present on legs and feet and a fairly large patch on back of neck under hair line. Physical examination otherwise negative except for slight chronic alveolar trouble (pyorrhea). Bowels regular. Cultures from eczema scales and from surfaces underneath scales showed a pure growth of *staphylococcus aureus*, from which an autogenous vaccine was prepared. She received, on May 17, 200 million *staphylococcus aureus* vaccine; May 29, 500 million autogenous+500 aureus. Eczema improved on neck, June 3, 500 million autogenous+500 aureus; June 9, 1500 million autogenous+500 aureus. She received a similar

dose on June 14, 21, July 2, 16 and 26, the eczema improving steadily. She received another dose on Aug. 9 of 1000 million autogenous+500 million aureus and a similar dose on August 26, when the skin trouble all cleared up and remained well since. She has received eleven further similar treatments at an interval of from one to three months to keep up the immunity and prevent recurrence. She has gained in weight and is feeling very much better generally.

This case, a dry and sealy eczema of ten years' duration, the hardest type of eczema to respond to any method of treatment known, has readily yielded to the autogenous vaccine in large doses, remaining well for over one and one-half years. She has also shown a very marked improvement generally.*

The following case is probably the worst eczema case I had under observation. She responded in a most brilliant way to the vaccine. I cite it principally to show that the most hopeless case of eczema should not be given up without first trying the use of autogenous vaccine.

CASE 38. S. R., female, 58 years, Jan. 7, 1914. General diffuse running eczema of two years' duration. Started with swelling of the face. Lost all her hair. Continuous sealing, crusting, itching and burning, affecting her eyelids and mucous membrane of her mouth. Lost sense of taste shortly after skin trouble began. Stomach fair, bowels constipated. Examination showed skin of face, hands, neck, chest, arms, part of abdomen and thighs covered, with profuse crusting and acutely inflamed and swollen in parts. Eye-lashes gone. Eyes lacrimating. Lids ectropic. Hair all gone. Considerable itching and crusting of scalp. Skin in parts infiltrated, cracked and desquamated. In parts denuded with some thin scales covering the denuded and bleeding surfaces. Urine negative. Feces showed marked carbohydrate fermentation. Cultures from eczema showed *staphylococcus aureus* from which an autogenous vaccine was prepared and administered. She received 36 treatments in doses ranging from 400 to 5500 millions, at an interval of one to two days at first and later from one to three-week intervals. Eczema was markedly improved Feb. 1 and was practically well on March 21, 1914. Has remained well since except for occasional dryness and chafing of exposed parts, like the back of the neck and arms during the winter months, but no itching or burning sensation has been present. Has had no true eczema since. Treatments were kept up once in two weeks to once a month or longer to prevent recurrence. Eczema has been well. Hair growing well and thick. Eyelashes grown. Taste regained two weeks after treatment was begun. Bowels regular and feeling well generally. Has gained eight pounds in weight and considers herself a well woman now.

This patient when first seen was advised to enter a private hospital, where she remained for four weeks. She was kept on a milk diet for a week, to which were added other articles of food very gradually.

* The stock aureus vaccine, made up of several strains, was used in small doses together with the autogenous in the hope of immunizing the patient in a prophylactic way against the possibility of later infections with other strains of *staphylococcus aureus* different from the one which the autogenous vaccine was made up of.

ually and cautiously. A daily morning washing with boric acid solution was given followed by a bland ointment.

The administration of her autogenous vaccine in large doses, together with the complete rest and change from her home surroundings, which were not very conducive to her getting better, as well as the topical applications, all helped, no doubt, to the rapid successful outcome of this case.

The idiosyncrasy to certain articles of food as a cause of skin affection is well known to everyone, a good example of which is fish poisoning. The relation of such food poisonings to eczema is referred to by standard text-books on skin diseases. The following case is a good illustration of poisoning by eggs.

CASE 42. L. A. C., female, 42 years, applied for treatment April 8, 1914. Complained of a vesico-pustular eczema of face of twelve years' duration. Skin of face covered with a vesico-pustular eruption and generally much inflamed. When she was sixteen years of age she suffered considerably when eating anything with eggs in it. Urine negative, except for low specific gravity (1008). Feces examination was found negative. Cultures from the vesicles and pustules showed *staphylococcus aureus* and a few chains of *streptococcus*. Autogenous vaccines were made up and administered at 3- to 12-day intervals. She received nine treatments in all. She left on her vacation May 22, face practically well. Owing to her idiosyncrasy to eggs she was advised to take eggs sparingly, increasing it gradually. The leaving out of eggs in her diet helped, I believe, in the successful results obtained in this case.

Very striking illustrations of food sensitization as a cause of asthma and eczema, and the treatment of the same by immunization with increasing doses of white of eggs, have been reported by Talbot.⁵ Although Talbot was able to help the milder types of asthma and eczema by gradually increasing doses of the particular protein that caused the poisoning, he was unable to help the more severe types in the same way. I believe his failure to be due in part, at least, to his neglect to take into account the bacterial invasion. Though it is secondary to the food poisoning, the condition will not be ameliorated. I believe, by the removal of the primary cause alone, after the secondary bacterial infection is once established.

The following two cases are good illustrations of the part played by mental anxiety and worry in eczema.

CASE 47. C. W. W., male, 52 years, first applied for treatment May 8, 1914.

He had an acute eczema which began four months previous "following a cold." Had considerable business worry at that time. The eczema first began with swelling and serous oozing inside the ear, spread on the outside and to other parts of the body. Examination showed eruption of face, neck, ears and outer side of right thigh. Face, ears and neck markedly swollen, with considerable oozing, crust formation, vesicles and pustules. He was at once

sent to a private hospital where he could be properly attended to. Cultures showed a pure growth of *staphylococcus aureus*, from which an autogenous vaccine was prepared and administered, at first every day and later every 3 to 12 days, in doses ranging from 250 to 6500 millions. Improvement was noticed 24 hours after first inoculation. He left the hospital on the sixth day, markedly improved. Improvement kept up steadily. Skin was practically well until Oct. 19, when he was under considerable nervous strain and business anxiety, at which time he had recurrence of swelling over his eyes and oozing behind the ears, which subsided in a few days. He had one treatment on Oct. 19, since which time he has been well. He received 19 treatments in all. The dose that was necessary to produce any effect upon this patient, as in a great many others with eczema and acne, was tremendous, reaching up to 6500 million organisms.

The other case where anxiety showed a definite relation to a recurrence of the eczematous eruption was that of:

CASE 46. K. E. J., male, 46 years. First consulted me on Apr. 31, 1914, for eczematous eruption of face, neck and hands, of sixteen years' duration. The eczema first began in 1898 while in Cuba, with vesicles and serous oozing of fingers, which spread to the dorsal surfaces of hands and wrists. In 1911 he was treated by his physician with stock *staphylococcus aureus* vaccine obtained from me. The eczema cleared up and he remained free from it until last summer when it recurred. He was again treated with the same stock *staphylococcus*, with no effect this time. The eczema was getting worse, spreading to face and neck, when he was sent in to me for treatment with autogenous vaccine. Examination showed skin of dorsal surfaces of hands covered with a vesico-pustular eruption, marked oozing upon the slightest disturbance of the surface scales or crusts and cracking of fingers. Similar eruption present on skin of upper arms, neck and face. Urine negative except for high urea (3.2%). Feces showed a carbohydrate fermentation. Cultures from the various lesions showed an abundant growth of *staphylococcus aureus* from which an autogenous vaccine was prepared and administered. He received twenty-six treatments in all at three to ten-day intervals in doses ranging from 500 to 4000 million of organisms. Eczema improved markedly after the third treatment. The face and neck and forearms were free from trouble seven weeks after beginning of treatment (June 22). On August 21, skin practically well. Was told to come back in two weeks. He turned up Sept. 14th with a marked recurrence of the eczema on hands and fingers, stating that his only child was very ill and the doctor told him that he might lose her. He was very much worried over it and the skin began to break out about that time. He was well until that time. He was given three more treatments. The eczema again cleared up. He has been well since.

I believe that the recurrence in these two cases can be attributed in great part to the mental anxiety and that it was a little more than a coincidence.

The following case is a good example of an occupational eczema:

CASE 36. Male, 54 years, optician was first seen on Oct. 20th, 1913. Face and scalp covered with a vesico-pustular eruption with considerable itching, of two months' duration. A careful investigation of his occupation revealed the fact that he does considerable developing of photographs. The careless scratching of his face and scalp while at work, transferring some of the developing fluid to the more delicate skin of those parts started a dermatitis, probably due to the metal poisoning in the developing fluid. This dermatitis became infected with the staphylococcus and produced a true eczema. The hands showed the affection only to a slight extent. Urine negative. Feces examination showed a carbohydrate fermentation. Cultures from the vesicles and pustules showed a pure staphylococcus aureus, from which an autogenous vaccine was made up and administered. He received eight treatments in all at an interval of from three to twelve days in doses ranging from 250 to 2000 million, and was discharged cured (Dec. 6, 1913), six weeks after treatment was begun. He has had no recurrence since. This patient has been again doing developing for over a year now, being careful not to touch his face at the time, without a return of his trouble. Beside the vaccine the patient received a calamine wash to allay the itching. He was ordered not to touch the developing fluid for a while and to *let his face alone.*

This case illustrates the importance of inquiring into the man's occupation as to what he actually does and not being satisfied with a general statement. His being an optician would never have revealed the fact that he actually was doing developing, which was the underlying cause of his complaint. I do not believe that this patient could have resumed his work in developing, without a recurrence, for over one and one-half years, unless the use of autogenous vaccine had rendered him immune to the secondary staphylococcus infection. Recurrences of the dermatitis due to the metal poisoning might have taken place, but they probably were so slight without the subsequent infection that they remained unnoticed.

RESULTS.

The results obtained in these fifty-one cases can be briefly summarized as follows: Cured, 43 cases. Of these there were eight cases that had one or more recurrences, which yielded readily to from two to four treatments of their autogenous vaccine.

Improved, 6 cases.

No improvement, one case.

Results unknown, one case.

The number and duration of treatments were as follows:

Minimum number of treatments, 3.

Maximum number of treatments, 41.

Average number of treatments, 12.

Minimum duration of treatment, 2 weeks.

Maximum duration of treatment, 12½ months.

Average duration of treatment, 11 weeks.

Forty-five of the 51 cases here reported have been of the vesico-pustular and weeping variety.

The remaining six were of the dry and scaly type. Two of the six were improved. Four were cured. The difficulty with some of the scaly types is that no cultures are obtainable and hence no autogenous vaccine can be prepared and they have to be treated with stock vaccines.

I wish to refer here to the results obtained with this method of treatment by various other men, as found in the literature.

Gilchrist⁶ of the Johns Hopkins University reported 60 cases of eczema, 20 of which were markedly benefited, 20 were moderately benefited, and the effect on the remainder was nil. He used principally stock staphylococcus albus vaccine. He claims to have obtained most marked results in seborrheic eczema. After that the pustular and weeping eczemas were most benefited, while the scaly and indurated patches were not at all affected.

The surprising thing to me is that Gilchrist obtained as many good results as he did with stock vaccine and staphylococcus albus at that, because almost all the cases of eczema in my series and those of other men who have made a bacteriologic study of eczema (as already referred to—see under "bacteriology") showed the predominating growth to be staphylococcus aureus.

Smith⁷ reports over 40 cases of eczema treated with the staphylococcus albus vaccine. The type which responded best he claims was the so-called eczema squamosum. In many of these cases the results were excellent. Pruritus, which was marked in a large per cent. of the cases, disappeared rapidly. He came to the conclusion from the clinical reaction of these cases to the vaccine that the staphylococcus is not necessarily pyogenic and that it is capable of setting up a dermatitis corresponding to certain types of the so-called eczema.

Other authors reported varying numbers of cases treated by vaccines with invariably good results. (Hazen,⁸ Davis,⁹ Farrell¹⁰ and McDonald.¹¹)

Perhaps the most striking example showing the fallacy of treating all eczema cases with stock staphylococcus albus vaccine as recommended by Gilchrist is the following case:—

CASE 25. C. C., male, 27 years, Jan. 19, 1912. Very marked vesico-pustular eczema over face, forearms, chest and legs, with considerable inflammation. Has had it on and off for the last seven years. Suffers now considerably with itching and burning night and day. Feces showed small, hard, marble-like pieces (sheep manure). Abundant undigested muscle fibers. Urine negative. Cultures from pustules and oozing surfaces of eczema showed staphylococcus aureus and long chains of streptococci, the latter predominating. He had eleven treatments of autogenous staphylo- and streptococcus vaccines at an interval of from five to seven days. Duration of treatment two months. There was a very marked improvement after third inoculation. Eczema practically cleared up. Was entirely well March 16. Discharged cured. Has had no recurrence of the eczema since.

Without the individual bacteriologic investigation and the use of the autogenous streptococcus vaccine, I believe that this case, as well as the other five cases, where streptococcus was found culturally, would have had to be reported as failures.

SUMMARY AND CONCLUSIONS.

1. Eczema in its primary stages is in reality a dermatitis, the exciting cause of which may be any external or internal irritant capable of exciting a dermatitis.

2. The "necessary something" or the "unknown quantity" in the etiology referred to in the text books, responsible for changing the dermatitis into a true eczema is the secondary bacterial invasion of the dermatitis.

3. The absence of bacteria in the primary or dermatitis stage of eczema and the abundant growth obtainable from the secondary or true eczema lesions, together with the clinical response to the autogenous vaccines—all fairly well substantiate the etiologic relation of bacteria to this disease.

4. Staphylococcus aureus, according to my findings, is the organism always present in eczema, at times mixed with streptococcus and rarely mixed with staphylococcus albus.

5. The general condition, food idiosyncrasies, habits and occupation of each individual patient should be carefully studied in order to eliminate if possible the exciting causes of the dermatitic lesions.

6. Ointments, powders and other topical applications, though temporary in their effect, are necessary adjuncts to the vaccine treatment to protect the raw skin and help to relieve the patient's discomfort.

7. The presence of the streptococcus should always be kept in mind and when found a separate autogenous vaccine should be prepared therefrom.

8. The use of large doses—6000 million organisms or over—of the autogenous staphylococcus vaccine was found necessary for the successful treatment of this disease.

9. Vaccine treatment, more especially the use of autogenous vaccine, when administered in the proper doses, yields by far the best results in the treatment of this intractable disease—eczema.

In concluding I wish to thank Dr. Charles J. White for his helpful suggestions in the preparation of this paper.

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CASE REPORTS.

CASE 1. M. W., female, June 20, 1908. Complained of eczema of the hands off and on for several years. Indurated eczematous patch about the size of a half dollar on the right wrist for the last four months. Staphylococcus opsonic index on beginning treatment was .65. She received 3 treatments of staphylococcus stock vaccine at intervals of 3 and 6 days, when she left on her vacation. Returned in September somewhat improved. Received 10 more treatments, at the end of which time the eczema was practically well. Was given 5 further treatments and was discharged cured, Jan. 2, 1909. Staphylococcus opsonic index on date of last treatment was 1.04.

CASE 2. M. H. F., male, 55 years, Dec. 7, 1908. Complains of eczema on hands of 25 years' duration. Vesicles and pustules. Considerable itching and oozing. Cultures from unopened vesicles were found sterile. Cultures from pustules and oozing surfaces showed staphylococcus aureus. He also had a chronic alveolar osteomyelitis (pyorrhea) which showed a mixed infection of pneumo-staphylo- and streptococci. Opsonic index was staphylo., .58; pneumo., .61; strepto., .84. He received six treatments. Was discharged cured. The opsonic index was up on Jan. 19 to staphylo. 1.19 and pneumo. 1.30.

CASE 3. L. W. L., male, 26 years, July, 1909. This patient when he applied for treatment had a very marked form of generalized weeping eczema covering arms, shoulders, chest, part of face, ears and small areas throughout the rest of the body. Marked erythematous and squamous patches with vesicles and pustules. Very considerable serous oozing, marked swelling of ears and crust formation behind ears. Has been suffering considerably from itching and pain. The condition first started about a year ago. Has been growing worse steadily. Had no relief from any local applications. He received 41 treatments at 2- to 5-day intervals and was discharged cured Oct. 28 (a little over three months). He remained well until Dec. 11, 1912, when he came back with a mild recurrence, showing small areas on dorsal surfaces of hands covered with a vesicular eruption. Few vesicular patches also present on face. Skin otherwise negative. Urine negative except for high urea (3.4%). Cultures showed pure staphylococcus aureus. He received two treatments with autogenous vaccine. Was discharged cured again Dec. 14, 1912. Has been well since.

CASE 4. H. A. L., male, 41 years, July 24, 1909. Had eczema on hands for 16 years. Complains now of eczema of legs of 3 years' duration. Eczema patches are dry, red and scaly. No oozing. Bowels

regular. General condition good. Cultures from eczema negative. Cultures from nose showed staphylococcus aureus. Was given 5 treatments of stock staphylococcus aureus at 3- to 7-day intervals. Came back 6 weeks later and received one more treatment. Was discharged cured. Has been well since.

CASE 5. R. S., female, 40 years, Sept. 1, 1909. Has an eczematous eruption of hands of 12 years' duration. Is worse during the winter. No other parts of body affected. Bowels constipated. Received 3 treatments at weekly intervals and was discharged well Oct. 20, 1909. Came back Nov. 26, 1910, with some desquamation of hands. Was given 2 treatments. Discharged cured. (Could not be located by letter).

CASE 6. F. T., male, 6 years, Dec. 19, 1909. Complained of eczema of one year's duration. Subject to colds which hang on for a long time. Eczema cultures were found sterile. Was given 11 treatments of staphylococcus and pneumococcus vaccine at 5- to 14-day intervals. At the end of the 3d inoculation the itching had all gone. Pimples still present. After the eighth inoculation the eczema was all cleared up. No itching. Had 3 more treatments and was discharged cured, June 18, 1910. "Has been well since."

CASE 7. H. A. H., male, 69 years, Feb. 22, 1910. Complains of eczema in popliteal space. Believes it began following a carbuncle two and a half years ago. Has been having boils of neck and scalp ever since. A number of small furuncles present on scalp now. Very painful and indurated. Urine showed a great many colon bacilli, free and clumped pus. Cultures from boils and eczema showed a pure staphylococcus aureus, from which an autogenous vaccine was made. He received six treatments at 3- to 14-day intervals. Discharged cured. Came back three months later (July, 1910) with a slight recurrence of furunculosis. Was given three more treatments. Discharged cured.

CASE 8. C. R. R., male, 35 years, Feb. 26, 1910. Complained of acute eczema of face. Father had eczema and mother had psoriasis. Eczema started with red patch over chin. Is growing worse. Skin of whole face shows yellowish crusts and scales, with some oozing. No lesions on any other part of body. Staphylococcus opsonic index was .67, strepto., .87; pneumo., .58 and colon, .77. Cultures showed staphylococcus aureus. Urine cultures showed staphylococcus albus. Autogenous vaccine was made up and administered. He was given five treatments at 2- to 10-day intervals. Showed little benefit. Discontinued treatment against advice.

CASE 9. H. S. W., female, 34 years, Apr. 28, 1910. Had eczema when a baby. Remembers having had it for years. Then it disappeared, remaining on flexor surfaces of elbows only. Two years ago it recurred with a rash on face. Lasted for over a year. Got better. Complains now of same kind of outbreak. Examination showed a typical acute eczema in the vesicular stage, with red patches and pin point vesicles. Opsonic index was staphylococcus, .66; streptococcus, 1.07; pneumococcus, .89 and colon, .87. She received seven treatments at 4- to 7-day intervals and was discharged well on June 13, 1910. She returned about two years later (Apr. 18,

1912) with a very slight recurrence. Was given six more treatments and was discharged well June 6, 1912. Has had no recurrence since.

CASE 10. K. F. B., male, 57 years, June 18, 1910. Eczema of face on and off for the last two years. Bowels very much constipated. Urine negative. Eczema cultures showed pure growth of staphylococcus aureus, from which an autogenous vaccine was prepared. He received 8 treatments at intervals of from 4 to 14 days. Was discharged cured Aug. 8, 1910. Has had no recurrence.

CASE 11. L. A., female, 24 years, June 20, 1910. Father troubled with a generalized eczema. Patient complained of scaly eczema on various parts of body. Began on legs and gradually spread upwards. Has been breaking out on her face for the last three months. Cultures from eruption were sterile. Stock aureus vaccine was administered. She received six injections in all at intervals of from 3 to 7 days. Face showed marked improvement after second treatment. Eczema on the whole better when she discontinued treatment three weeks later July 14, 1910.

CASE 12. A. C. W., female, 39 years, Aug. 1, 1910. Has vesicular eczema of hands and fingers of four years' duration. Eczema began with swelling of both hands. Swelling disappeared soon after, leaving the vesicles, which got better in the winter. Every summer after that vesicles would reappear, getting worse each time until it finally formed into the continuous and confluent eczematous condition present now. Boils and carbuncles off and on for last four years. Bowels constipated. Feces fermented, darkish green, very foul. Urine negative. Cultures from oozing surfaces showed pure growth of staphylococcus aureus. She had 12 treatments at an interval of 3 to 5 days, and was discharged cured Oct. 11, 1910. The constipation was overcome to a great extent by agar agar and increase in the amount of water taken.

CASE 13. R. H. A., female, 28 years, Oct. 14, 1910. Applied for treatment of chronic eczema, which she had ever since she was six months old. "Chiefly dry, rough and scaly. Not moist type." Has now a vesico-pustular eczematous eruption of face and neck. Practically no oozing. Had a bad attack of urticaria ten years ago, which kept recurring, at times as often as twice a week, until last May. Has to be very careful with her diet. Cannot eat fish, strawberries, tomatoes or veal without getting poisoned by it. Bowels very constipated. Takes pills and laxatives continuously. Was in a private sanatorium for seven months without relief. Urine normal. Feces showed very marked carbohydrate fermentation. She received 14 treatments of stock vaccine at intervals of from 3 to 10 days. Discharged cured as to eczema. When last seen, December, 1912, eczema was still well. Was heard from on Feb. 9, 1915, in answer to a letter of inquiry, that except for occasional slight passing eruption in the winter she has been very well.

CASE 14. S. F. P., male, 36 years, Jan. 14, 1911. Complains of eczema of hands of 18 years' duration. First appeared with yellow blisters associated with intense itching. Skin generally sensitive. Urine negative except for urea (3.1%). Cultures from pustules showed pure staphylococcus aureus.

Staphylococcus opsonic index was .49. Autogenous vaccine was prepared and administered. He received 22 treatments at 4- to 10-day intervals. On April 24, 1911, was markedly improved. Discontinued treatment against advice. When last seen, January, 1915, he said that eczema was well since he was treated and is well now.

CASE 15. H. F. R., male, 60 years, Feb. 6, 1911. Complained of a dry, scaly eczematous eruption on ankles and on both legs, of several years' duration. Had been treated for it for two years with ordinary treatments with no relief. He received four treatments with stock vaccine at 5- to 10-day intervals when eczema was all well. Was given 4 further treatments at intervals of from 3 to 4 weeks as a prophylactic measure and was discharged cured.

CASE 16. L. I., male, 3 years, Feb. 13, 1911. Eczema of hands and face of two years' duration. Seropustular eruption present now over face, ears, both hands and wrists. Constipated since he was born. Takes cathartics and enemas all the time. Cultures from the pustules showed a pure staphylococcus aureus from which an autogenous vaccine was prepared. He received 15 treatments at 3- to 10-day intervals. After the second treatment eczema was markedly improved. Improvement continued steadily until March 31, when there was no more itching or oozing. On May 12, the eczema had all cleared up. He received 2 more treatments and was discharged cured May 25, 1911. Has had no recurrence.

CASE 17. L. Z., male, 52 years, May 1, 1911. Complains of eczema of five years' duration. First started on right leg. Spread quickly over legs, thighs, hands and face. Began with little blisters. Itching very intense day and night. Bowels constipated. Urine negative. Staphylococcus opsonic index was .62; colon .62. Cultures showed a pure growth of staphylococcus aureus from which an autogenous vaccine was prepared. He received 13 treatments at intervals of 5 to 11 days. Eczema was markedly improved after the third inoculation. Improvement kept up steadily until Nov. 23, 1911 when he was sent off for a month. He received six more treatments at one to two month-intervals and was discharged well, May 14, 1912. He returned Sept. 17, 1912 with a slight recurrence which was relieved by three further treatments (Sept. 17, 24 and Oct. 1). He returned again on March 25, 1913 with a slight itching on thigh. Was given one treatment on that date and another on March 31. Was well until Oct. 24, when he returned with a slight swelling around eyes and around chin. Had one treatment on the same date and another on Oct. 30, 1913. Has been well since.

CASE 18. T. F. L., male, 48 years, May 31, 1911. Complains of itching of head, particularly behind the ears, with some oozing. Examination showed psoriatic patches round elbow joints, smaller spots on hands and other parts of the body. Few patches on scalp. Behind ears there is an erythematous and scaly eruption, very itchy, with serous oozing. Urine negative. Feces fomented, not formed and foul, with large amounts of unchewed and undigested meat remains, vegetable and starch remains. Cultures showed predominating staphylococcus aureus and few chains of streptococcus. He received eleven treatments in all at an interval of from 5 to 7 days. Eczema was cured, psoriasis showed slight improve-

ment. The opsonic index when he first began treatment was staphylo., .61; strepto., 1.11; pneumo., 1.05; and colon .49. No other opsonic tests were made.

CASE 19. C. R., female, 19 years, Aug. 16, 1911. Complains of vesicular and squamous eczema over arms, face and neck and back of ears of fifteen years' duration. Bowels slightly constipated. Physical examination negative except for slight presystolic murmur. Feces was found to be made up of small hard marble-like pieces (sheep manure). Urine negative. Cultures from oozing surfaces showed pure growth of staphylococcus aureus. She had twelve treatments in 3½ months at an interval of from 3 to 7 days. She showed very marked improvement. Left on her vacation. Has not been heard from since.

CASE 20. H. H. C., male, 51 years, Sept. 19, 1911. Complained of eczema of feet and ankles of 12 years' duration. First came on while in the Philippines. Began with acute ulcerative condition of soles of feet which disappeared at the end of about three weeks. This was followed by an eczematous condition which has kept up since. Physical examination negative. Cultures showed staphylococcus weak aureus. An autogenous vaccine was made up and sent to his physician in Washington who kept up treatment. When seen again on his visit to Boston, Dec. 8, 1911, eczema was well. He had no trouble since.

CASE 21. M. S. W., male, 60 years, Sept. 21, 1911. This patient was referred for treatment for an infection of the left antrum. He also had an old standing erythematous vesico-pustular eruption on face and other parts of body. Urine negative. Feces unformed, fomented and foul. Marked increase of starch and muscle fibers. An autogenous vaccine was made up from the pus obtained from the antrum. Organisms staphylococcus aureus and streptococcus. He had four treatments with autogenous vaccine mixed with stock aureus (cultures were not obtained from the eczema) at intervals of from 5 to 8 days. Treatments were continued by his family physician in Washington, and while on his vacation for about 12 months. There was marked relief in the discharge from the antrum while the vesicles and pustular eruption was entirely cured when last seen (Nov. 2, 1911). Had no recurrence of eczema since.

CASE 22. R. M., male, 31 years, Sept. 30, 1911. Eczematous eruption and cracking of skin of right hand of one year's duration. Gets worse in cold weather. Very marked itching. Had eight treatments at 7 day intervals. Was discharged cured. Has not been seen since. Could not be located by letter.

CASE 23. L. B. A., female, 6 months, Oct. 31, 1911. Had eczema all over body since she was one month old. Father's brother has eczema. Bowels somewhat diarrheal. Had been always breast fed. Eczema growing worse all the time. Cultures showed a pure growth of staphylococcus. An autogenous vaccine was made up and administered. She received 4 treatments at intervals of 5 to 9 days. Received one further treatment one month later and was discharged well. Five months later (May 2, 1912) she returned with a slight recurrence. Was given one treatment and has been well since.

CASE 24. G. L., female, 16 years, Dec. 26, 1911. Had eczema when a child. Has practically never been free from it. Used an ointment to relieve the itching. Has now eczema behind ears with marked oozing and fissuring, spreading upwards towards scalp. Skin otherwise negative. Urine negative. Feces not formed, very foul, fermented, undigested vegetable and meat remains. Cultures showed pure *staphylococcus aureus*. She had 6 treatments at an interval of 1 to 2 weeks. The eczema disappeared and remained well up to Oct. 19, 1913 (one year and eight months), when she showed a very slight recurrence. She received seven more treatments and was discharged cured Jan. 3, 1914. Has been well since.

CASE 25. Included in the body of the paper.

CASE 26. M. W. E., female, 45 years, Jan. 27, 1912. Had eczema of face all her life. Had never been free from it. Skin of face covered with erythematous and pustular eruption. Skin over other parts of body in good condition. Had electric treatments, with no relief. Urine negative except for high urea (3%). Cultures from pustules showed *staphylococcus aureus* and chains of streptococci. An autogenous vaccine was made up. She received 12 injections at intervals of four to 21 days. Was discharged well May 14, 1912.

She returned 11 months later (April, 1913) with a recurrence of the eczema. She was given eight more treatments at three- to nine-day intervals and was discharged cured, June 23, 1913. Has been well since.

CASE 27. P. E. L., male, 63 years, May 4, 1912. Physician. Has had eczema of right leg for last six years. Has some eczematous eruption on face. No relief obtained from local applications or x-ray treatment. Cultures from eczema showed *staphylococcus aureus* and albus from which an autogenous vaccine was prepared. He received 17 treatments at two- to eight-day intervals. Eczema showed marked improvement after the first few injections and continued improving steadily. Eczema was well August 10, 1912. Has had no recurrence.

CASE 28. D. E. M., female, 35 years, June 1, 1912. Had episodes three years ago. Skin of face and around mouth troubled her for a couple of months after. Skin became better but not quite well. Skin of face became very much worse the last two months. Marked itching and burning. Spread all over face within the last three weeks. Feels drawn, dry and hot. A typical erythematous and in parts squamous eczema. Has also a marked advanced stage of chronic alveolar osteomyelitis (pyorrhea). Several teeth loose. Considerable pus around many of them. Gums spongy and receded. Cultures from eczema showed *staphylococcus weak aureus* and albus. Urine negative. She had six treatments at intervals of five to seven days. Duration of treatment five weeks. Eczema was all well following the third treatment. She continued treatment for her gums. Discharged cured as to eczema July 6, 1912.

CASE 29. S. M., female, 6 months, Aug. 30, 1912. Eczematous rash present all over body. First came on during the hot weather a month previous. Started on her legs and back. Gradually covered whole body. Breast fed. Is not constipated. Has

a great deal of itching. Keeps her awake nights. Cultures from pustules showed *staphylococcus weak aureus*. She received four treatments in all, the first two at intervals of five days, the last two at two- and four-week intervals. After the second injection the eczema was practically cured. Received the last two injections prophylactically. Discharged cured Oct. 15, 1912.

CASE 30. H. I. W., male, 92 years, Sept. 28, 1912. Has erythematous eczema for last two years on upper arms, legs, wrists, face and neck. Is worse on the face. Bowels constipated (small, hard marble-like pieces). Urine showed heavy trace of indican. Otherwise negative. Cultures showed a pure growth of *staphylococcus aureus*. An autogenous vaccine was made and administered. He received six treatments at intervals of six to 14 days. Eczema improved considerably; itching less and skin looked better. Discontinued against advice. Was getting on fairly well when last heard from.

CASE 31. B. L. T., male, 37 years, Oct. 8, 1912. Eczematous eruption on left foot of seven years' duration. Itching worse at night. Eye lids also involved. Has been getting worse gradually. Resisted various treatments by eye specialist who sent him in for vaccine treatment. Cultures showed a predominating growth of *staphylococcus weak aureus* and an occasional chain of streptococci. An autogenous vaccine was made up. He received 11 treatments at five- to 21-day intervals, when his eczema had entirely cleared up. Received one more treatment seven weeks later and was discharged cured. Has had no recurrence.

CASE 32. F. P. J., male, 55 years, Jan. 23, 1913. Squamous eczema of hands, forehead and back of ears; elbows and legs especially bad, soles of feet scaling markedly. Thirty years' duration. No vesicles present at present time. Typical case of eczema squamosum. Physical examination otherwise negative. Urine negative. Stool watery. Very foul. Considerable undigested meat and starch remains. Cultures from oozing surfaces obtained by removing the scales showed *staphylococcus weak aureus*. He had four treatments at two- to four-day intervals. There was a slight improvement. Left on his vacation and has not been heard from since.

CASE 33. Included in body of paper.

CASE 34. K. L., female, 21 years, Oct. 6, 1913. Complains of eczematous eruption on right middle finger of four years' duration. Skin of finger dry and cracked with considerable itching. Acne of face for several years. Skin otherwise negative. Cultures from eczema showed a pure growth of *staphylococcus aureus* from which an autogenous vaccine was prepared. She was given eight treatments at four- to 21-day intervals when she was discharged cured. Eczema showed marked improvement after third injection and continued well until discharged cured, Oct. 13, 1913. No recurrence since.

CASE 35. S. N., female, 36 years, Oct. 8, 1913. Eczematous eruption of many years' duration. Examination showed marked eruption with small blister-like papules on skin of flexor parts of elbows, extending upwards to shoulders, front of neck, back of neck and on inner side of right thigh. Skin

cracked and excoriated with intense itching. Urine negative. Cultures showed a pure growth of *staphylococcus aureus*. An autogenous vaccine was prepared. She received 19 treatments at intervals of three to seven days. Had four further treatments at three- to eight-week intervals. Eczema showed improvement at the end of the second treatment and was practically well after the fifteenth (Nov. 28). Was discharged cured May 1, 1914. Has had no recurrence since.

CASE 36. Included in body of paper.

CASE 37. B. A., male, 6 months, Dec. 29, 1913. Eczema of greater part of body. First started when two months old, on side of face and head. Cultures from oozing surfaces and crusts showed pure *staphylococcus aureus* from which an autogenous vaccine was made and administered. He received seven treatments in all, at intervals of from three to nine days. Eczema showed improvement after third inoculation and was practically well after the fifth inoculation, Jan. 26, 1914. Has not been heard from since.

CASE 38. Included in body of paper.

CASE 39. K. H. R., female, 38 years, March 3, 1914. Complains of burning and itching eruption on face of one year's duration. Eruption would start with small blotches and papules coming to a head. Not much pus present. Urine negative except for urea (2.2%). Cultures showed pure *staphylococcus weak aureus*. An autogenous vaccine was made up and administered. She received seven treatments at five- to seven-day intervals when she was discharged cured, April 23, 1914. Has had no recurrence.

CASE 40. B. J. M., male, 4½ years, March 31, 1914. Had eczema ever since he was five months old. Very bad the last four weeks. Asthma for the last year and a half. Examination showed hands, elbows and neck covered with a weeping eczema with crusts and open wounds. Lungs show typical asthmatic condition. Urine negative. Cultures showed pure *staphylococcus aureus*, from which an autogenous vaccine was made. He received 11 treatments in all, at intervals of from four to 14 days. Eczema showed marked improvement at the end of the third treatment. Improvement continued steadily. Discontinued treatment against advice June 6, 1914. Eczema much improved.

CASE 41. L. C. I., female, 36 years, April 2, 1914. Eczematous eruption on right middle finger and on dorsal surface of left hand. Finger began to trouble her 14 years ago and trouble continues to recur at intervals. One brother has eczema. Cultures made from the serous oozing showed a pure *staphylococcus aureus* from which an autogenous vaccine was prepared. She was given six injections at intervals of four to 21 days. The eczema showed marked improvement after the second treatment. Improvement continued until the sixth injection, May 7, 1914, when the skin was entirely healed and well. Was given three more treatments and was discharged cured, July 1, 1914. Has been well since.

CASE 42. Included in body of paper.

CASE 43. R. C., female, 44 years, April 18, 1914. Had eczematous eruption for last three years, principally on hands. The last week she had a very acute pustular eruption all over palms of hands, worse on right hand. Cultures showed pure growth of *staphylococcus aureus*. She received bi-weekly treatments for the last ten weeks. Very marked improvement at the end of the eighth treatment. Kept on improving steadily. Skin has been all well since Aug. 18, 1914.

CASE 44. P. M., female, 32 years, April 21, 1914. Had sero-purulent eczema on face and dorsal surfaces of hands for five months. Skin showed many serous pustules. Bowels very constipated. Feces showed marked carbohydrate fermentation. Cultures from the pustules showed a pure *staphylococcus aureus*. An autogenous vaccine was made up. Was given 14 treatments at intervals of from two to seven days when she was discharged well. Has had two more prophylactic injections at intervals of three weeks. Has been well since. This case was very troublesome on account of a general erythema, soreness and marked inflammation of the face which persisted until it finally yielded to the vaccine.

CASE 45. T. M., male, 54 years, April 22, 1914. Complains of squamous and pustular eczema for last four years, mostly on neck. Erythematous patches and itching also present on back and the inner surfaces of thighs. Cultures showed *staphylococcus aureus*. Was given five bi-weekly treatments. Showed much improvement and left off treatment on account of leaving town (June 3). Returned to town again, resuming treatments Sept. 23. Received nine treatments. Is practically well. Still under observation. Treatments were bi-weekly.

CASE 46. Included in body of paper.

CASE 47. Included in body of paper.

CASE 48. G. D. A., male, 17 years, July 13, 1914. Complains of eczema since he was six weeks old and of asthma of eleven years' duration. Skin of neck and under both knees in popliteal space showed scales and small vesicles and pustules. Lungs showed a typical asthmatic condition. Urine acid in reaction, very slight trace of albumen and high urea (3.5%). Feces showed marked carbohydrate fermentation. Cultures from the eczema showed pure *staphylococcus aureus* from which an autogenous vaccine was made and administered. Patient was sent to a private hospital and was given 11 injections at intervals of one day, when he was sufficiently well to leave hospital. Was given nine further treatments at intervals of from two to seven days. Showed marked improvement in both eczema as well as asthma. Left for school Sept. 15, markedly improved.

CASE 49. L. S., male, 23 years, Sept. 14, 1914. Complains of an eczematous eruption of nine months' duration on inner side of thighs, on hip and right armpit. Skin cracked and crusting. Serous oozing present. Cultures showed pure growth of *staphylococcus aureus* from which an autogenous vaccine was prepared. He received eight injections at intervals of from three days to two weeks. Eczema showed very marked improvement after first treatment and continued to improve steadily. Was given one further prophylactic treatment six weeks later and was discharged cured, Feb. 4, 1915.

VARIATIONS IN THE SENSORY THRESHOLD FOR FARADIC STIMULATION IN PSYCHOPATHIC SUBJECTS.

H. MANIC DEPRESSIVE INSANITY.*

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THE purpose of this study is to follow further the evidence obtained in a former series¹ of cases in regard to the sensory threshold for faradic stimulation in the manic-depressive group. In the former paper the following conclusion was drawn from the evidence then available: "The manic phase of manic-depressive insanity shows a normal threshold, the depressive a pathologically high threshold. One case observed at intervals for two years seems to show a high threshold ranging down to normal with the variations of his depression down to a normal emotional state." This conclusion has received ample confirmation in the present series of cases. The attempt has been made in this study to make further correlations in this group of cases. The question naturally arises as to whether this definite finding of a high threshold (diminished sensitivity) in depressed cases and of normal threshold (normal sensitivity) in the manic cases will throw any light on the nature of these psychic states.

As to the last point, many opinions have been advanced. In the 1913 edition of his text-book Kraepelin reviews at length his own and others' views, and finally arrives at the conclusion that all the clinical manifestations of this disease are but the results of a single pathological process. He feels that a very few basic changes combined in infinitely varying proportions make up this syndrome. He considers the chief cause to be a congenital psychic change and finds a definite "Anlage" of depressive, manic, and cyclothymic states in a large proportion of the Munich cases. As an explanation of the psychical "Anlagen," the hereditary factor is, of course, evoked, and is found by Kraepelin in over 80% of the cases. Thus he is certain that the personality is a marked factor in determining the type of the disease, and he explains the greater number of depressed states in late middle life as due to the further development of the personality at this time. He summarizes others' ideas as to the ultimate cause as follows. Meynert considers the cause to be an instability of the vasomotor center, especially in its control of the cerebral

Note.—I wish to express sincere thanks to Dr. E. E. Southard not only for the use of the clinical material, but also for his kindly cooperation and invaluable suggestions.

* Being Psychopathic Hospital Contributions Number 68 (1915.5). This paper was read in abstract at the March meeting of the Boston Society of Psychiatry and Neurology. (*Bibliographical Note.*—The previous contribution was by Donald Gregg, entitled "Somatic Characteristics of General Paroxysms," published in the *Boston Med. and Surg. Journ.*, April 8, 1915.)

vessels. According to this observer the depressions are due to cerebral anemia, the manic states to hyperemia. Lange, in 1896, advanced the idea of the similarity of this syndrome to certain periodic metabolic disorders, especially gout. Stegelmann found a diminished uric acid excretion during depressions. Pardo considered it an intoxication with the metabolic products of skin bacteria. He found an increase in the flora of the skin during the attacks, and more especially noted the appearance of a certain coecococcobacillus at this time. He also noted the fact that the attacks were often the sequel of dietary errors, and that the attacks often terminated with a diarrhea. Parhon and Marbe lay the cause to the thyroid. Muratow to the adrenals, and Strausky to general metabolic disturbances. Angrude and Jaquin, following the lead pointed out by Morel and Doutrebenet in epilepsy, state that in this disease as well as in epilepsy, the neuroglia presents an "infantile appearance," and also consider the cause to be congenital. Thalbitzer advances the theory that the cause is to be sought in a disturbance of the blood supply to Helweg's triangular tract. This is the outcome of the latter's observation of the frequency of lesions in this tract in this disease. Kraepelin finally states that ". . . the true cause of the disease is to be sought in lasting internal changes, which are perhaps always, at least very often, congenital." (p. 1369.) He also feels that according to this idea the symptoms of mania and depression are perhaps merely different degrees of the same process, and hence not so different as may appear. Yet Kraepelin insists that there is a definite pre-mani-depressive temperament for each of the forms. He finds that the depressive temperament may have superposed upon it attacks of mania without really altering the basic condition. He uses this as an argument in favor of his impression that the states of mania and depression are not so opposed as would be thought from a superficial examination of these states. Bresler² also considers mania and depression to be very nearly allied and expressions of the same fundamental process. He further states that they may be commingled in any case in infinitely varied proportions. As to this Kraepelin says: "Of greater significance than the construction of clinical pictures from certain underlying disturbances, is the realization that the disease forms here collected into a clinical entity not only run over into each other without recognizable boundaries, but that they may neutralize and destroy each other in the same case." Kraepelin includes in this disease the entire gamut of periodic and circumscribed insanities, also what were formerly called simple manias, depressions and even some cases of dementia. He feels that the common basis of this disease is the prognosis; i.e., none ever end in deep dementia, even if the attacks are almost continuous throughout the lifetime of the individual. As to

somatic findings, Kraepelin mentions the following observations. Paton found that manics made poor subjects for sensibility tests. Wolskehl found by using the tachistoscope that they could read correctly only 75% of the number of a series of letters which the normal person could grasp. Franz and Hamilton found the threshold for touch, pressure, and pain high in depressed patients. Aschaffenberg and Isserlin found the association time lengthened in patients who exhibited flight of ideas, but very much more so in depressed cases. Rehm, in investigating the capacity of the thought mechanism by its fatigue threshold, concluded that manic-depressives were on the average possessed of one-third less capacity than normal people, but that the manics were much better than the depressed cases. Kraepelin, in speaking of somatic delusions, says, "This increased sensitivity to the occurrences in their own bodies stands in vivid contrast to the depression of *central sensitivity* (italics mine) in manic states." Of course he here refers to objective central sensitivity. Thus we find that objectively the central sensitivity to stimuli from without appears by all previous investigations to be lowered in this disease, although less in the manic cases than in the depressed; that many theories of all kinds have been evoked to explain the disease, but that the factor of heredity seems to be the most prominent; that Kraepelin considers the cause to be an hereditary predisposition which is manifested in the personality of the individual. "Finally, we must consider the unapparent continuous changes in the mental life, which also appear in the intervals between the frank attacks as evidence of the common psychopathological basis of manic-depressive insanity" (p. 1237. Italies Kraepelin's³).

"We feel that the evidence to be presented will be of such a nature that it will rather support the idea that mania and depression are in reality different states or perhaps opposite perversion of function of the central nervous system, or perhaps of certain centers." (Southard and Bond—"Cells in Manic and Depressed States.")

The present paper deals with 66 observations on 25 cases chosen at random from those admitted to the Psychopathic Hospital. The diagnosis of manic-depressive insanity (which is made here according to the Kraepelin teaching) was in every case but two the final discharge diagnosis. The data obtained from this series are to be considered simply as a further note. The treatment in all cases consisted in rest, careful nursing, and hydrotherapy in the form of prolonged baths and moist warm packs. Even the manic cases with marked "leveling of ideas" made good subjects. In this series, as in the former, the only observations considered are those which were proved to be valid by constant trying and retrying of each position of the secondary coil of the inductorium. There were

only two cases which responded so irregularly that they could not be tested. These were both in the manic group, and both later gave valid results. There were a few cases that were so disturbed that they could not even be made to sit down in the chair to take the test and which were transferred to other institutions before they could be tested. There were also a few depressed cases that showed such a marked fear reaction that they could not be tested.

The method employed is the quantitative method of Martin,⁴ by which the "shocks" delivered by the secondary coil of an inductorium can be accurately measured in physiological units. The method depends on the fact that, with a primary current of known, constant strength, the shocks delivered by the secondary of an induction coil increase in strength as the secondary approaches the primary. A specially calibrated coil with the slide for the secondary graduated in millimeters, is employed. The patient dips his fingers (the index and middle fingers of the left hand) into two liquid electrodes (these consist of a mercury and calomel paste contact between the wires from the secondary of the coil and an overlying layer of salt solution), and is instructed to press a telegraph key whenever he feels a shock. The operator, who sits in a different room from the patient, cautiously approaches the primary coil with the secondary, a millimeter at a time. At each millimeter a key is pressed which short-circuits the "make" shocks and allows the "break" shocks to get through to the patient. Finally the patient signals, indicating that he has felt the shock. This point is tried and retried until the possibility of conscious or unconscious deception on the part of the patient is absolutely ruled out. This process is repeated with 10,000, 20,000 and 30,000 ohms resistance in the secondary circuit. Thus four independent readings of the position of the secondary of the coil with relation to the primary are obtained. The resistance of the coil itself is 2900 ohms. The resistance of the patient's skin is taken to be 2100 ohms. For work of the highest accuracy this resistance should be determined in every case, but it has been found that this resistance is a very constant figure, varying not more than 500 ohms to either side. From these data the value of the shock necessary to produce sensation may be calculated by certain formulae. The result is expressed in Beta units. For normal adults this threshold⁵ has been found to be in the neighborhood of 100 Beta units at its lowest point in the daily,^{6,7} variation. It varies from 60 to 160 at different times of the day and on different days of the week. One Beta unit is the average amount of shock required⁸ to cause a minimal contraction of a frog's gastrocnemius stimulated through the sciatic nerve in the well known nerve-muscle preparation. The threshold in this work has been expressed in Beta units throughout, and, of

course, the higher the value the less sensitive is the subject.

In the present series, consisting of 12 males and 13 females ranging in age from 18 to 67 years, all tests were made between 4 and 8 p.m., i.e., at a time when the threshold is at its highest point in the diurnal variation.⁶

The results, as shown in tabular form, show the average of the 12 depressed cases to be 287 Beta units, a distinctly pathological value. This group consists in 44 observations ranging from 93 to 1661 Beta units. The latter enormous value was obtained in an alcoholic, and returned after a short time in the hospital to 400 Beta units, a not uncommon value for these cases. The only exceptions to the high threshold in this group were those cases which were tested at or very near the time of discharge. One case in particular is of interest as having been followed through two depressions. This case will be considered in greater detail later.

The average value of the threshold for the cases in the manic phase of the disease is 149 Beta units, a normal or slightly low value. This group consists of 22 observations on 13 patients. There were two exceptions to the universally low values obtained. One of these was considered clinically to be of the mixed type, perhaps one of the cases which Kraepelin considers to be periodic mania superposed on the depressive "Anlage." The other was undoubtedly a case of hypomania, but had a systolic blood pressure of 155 m.m. of mercury and a diastolic of 115, the latter being, according to Musser,⁸ almost pathognomonic of renal disease. This fact may account for the high threshold, as very high values have been found in the senile and arteriosclerotic psychoses. The lowest figure in this group was in an alcoholic with absent ankle jerks, Argyll-Robertson pupils, a negative Wassermann reaction in blood and spinal fluid on the day of his admission to the hospital. The last seems to be the significant point, as he was very euphoric. A few days later under hydrotherapeutic treatment he was much improved and his threshold was found to be 135 Beta units, as compared with the first value of 23 Beta units. With these exceptions, the manic cases were found to have a normal or slightly lowered threshold.

Those cases having definite hallucinations and delusions had a higher threshold than cases not showing these symptoms. It is evident that these cases averaged higher values than even the depressed cases. Of the cases showing one or both of these symptoms, 10 were in the depressed phase and nine were manic. As it is found that the manics showing the symptoms yield no values over 200 Beta units, i.e., the manics showing these symptoms were high as compared with the other manic cases, but not high enough to come into the depressed group. The reason for the high averages is to be laid to the enormous thresholds shown by the depressed cases showing

TABLE I.

Type.	No. Cases	Male.	Female.	Limits of Variations.	No. Observations.	Average.
Emotional Tone.	Depressed	12	5	7 93-1661	44	287
	Manic	13	7	6 23-267	22	149
Hallucinations.	Hallucinated ...	5	4	1 23-1661	10	321
	Not hallucinated	20	8	12 72-462	56	222
Delusions.	Deluded	12	6	6 23-1661	22	290
	Possibly deluded	5	3	2 93-264	9	159
	Not deluded ...	8	3	5 101-462	16	208
Total		25	12	13 23-1661	66	237

this symptom. To be sure, the manic cases showing these symptoms yielded readings which were at the upper limits of the normal range, and perhaps at times a little beyond. The fact that the readings in this group varied so greatly among themselves makes this conclusion of less value than would appear.

Other correlations (blood pressure, reflexes, usual sensory tests, tremors, cyanosis, etc.) were attempted but yielded no results. Other than those mentioned as alcoholics there were no cases who used any drugs. With the exception of the above-mentioned case, none showed any reflex disturbance or other neurological signs.

The prognostic value of this test in depressed cases is well illustrated by the case which has been cited before,¹ and which may be repeated here in greater detail. A piano tuner of 56 years of age was first seen in July, 1912. At this time he complained of inability to do his work and more especially of his lack of interest in things which formerly interested him, and of inability to get started at anything. At this time he was found to have a threshold of 318 Beta units. As the depression gradually wore off in the course of the next three weeks values of 219 and 163 Beta units were obtained, and finally, after a short vacation, his threshold fell to 106 Beta units. From this time on he felt perfectly well until May, 1914, when he returned feeling that another attack was approaching. At this time his threshold was 227 Beta units. He was advised to take a vacation immediately, which he did. In the course of the summer he wrote that he was steadily improving. He was again seen after he had been at work for a month. He was seen on a Saturday at 5 p.m., after a week's hard work. At this time he stated that he was feeling perfectly well. His threshold was 197 Beta units, a normal value for this time of the day⁶ and day of the week.⁸ The other depressed cases that have been followed to recovery have shown the same thing, though in a less striking way, because the others have been

true depressions rather than cases of "simple retardations." It is unfortunate that the manie cases cannot be followed as completely as can the depressed cases.² Thus it will be seen that one practical application of this test will be to determine when a depression ends, or rather to give us a means of determining by a numerical standard whether a patient has improved or is getting worse.

The application of this test as a point in the differential diagnosis of manie-depressive insanity will certainly be possible. That the differentiation of true depressions of this psychosis from those of the psychoneurotic group will be made vastly easier by the determination of this threshold is definitely indicated by the evidence which is at present available. In this psychosis the threshold is always raised in depressed states, whereas in the psychoneurotic group of cases it has been found to be within normal limits.¹ Thus we feel that the determination of this threshold will give information not only of prognostic, but also of diagnostic value, as far as can be determined from the evidence now available.

From this group of cases there has been accumulated evidence to show that the sensitivity of individuals suffering from manie depressive insanity to faradic stimulation is increased to a pathological point during the depressed phase and is normal or slightly decreased during the manie phase. It is a significant fact (and it is on it that the suggestion is based that the manie forms may have a slightly lowered threshold) that the manie forms yielded slightly more results under 115 Beta units than would a series of normal individuals at this time of day. This finding is also in accord with the view suggested by Southard,¹⁰ that hyperkinesis and allied states are associated with a "tissue-simplification," perhaps due to a withdrawal of the cortico-thalamie "inhibitory" or "switch-setting" impulses. Bevan Lewis has found an absence of metabolic pigment in hyperkinetic states, and Southard and Bond¹¹ have shown an increase of metabolic or catabolic lipid substances in depressed cases of manie-depressive insanity. That the latter finding may be correlated with a "tissue-complication," as the former has been correlated with a "tissue-simplification" is not improbable. With the histo-pathological evidence which Southard has reported, it is perhaps, not wrong to consider these variations in the sensory threshold as evidence of a functional hyper- or hypotonicity of these or similar centres, brought about, perhaps, by disturbances in cell metabolism. That this threshold appears to be a valid index of the condition of the "tone" of the central nervous system is also supported by the observation that the variations in normal subjects⁶ correspond to certain variations of central nervous system "tone,"⁷ as determined by other observers and by different methods.

It is, furthermore, found that four-fifths of

these cases at necropsy show no gross brain lesions, and that the remaining fifth show lesions similar to those found in dementia precox^{12,13} plus a slight grade of internal hydrocephalus. It seems as though this evidence from the anatomical point of view, taken in conjunction with that gained from the physiological, makes very probable the existence of variations in the functional activity of the central nervous system or of its parts as the basis of the variations of the emotional tone in manie-depressive insanity. From this point of view it seems as though Kraepelin's "Anlagen" may turn out to be congenital susceptibility to variations in tone rather than variations of an anatomical nature.

In conclusion, it is to be emphasized that in our opinion the evidence here presented points very strongly in the direction that manie-depressive insanity is a result of deranged function, and that the pathological physiology of the central nervous system in this psychosis deserves further study, especially as to whether the states of mania and depression may not be due to opposite perversions of function.

SUMMARY.

1. Twenty-five cases* of manie-depressive insanity have been selected at random from the clinic of the Psychopathic Hospital, Boston, in order to follow further the results obtained in this group of mental diseases in a former orientation study.
2. The present series has confirmed the impression gleaned from the first series of psychopathic cases.
3. The method employed is that devised by E. G. Martin for the measurement of induction shocks.
4. The cases in the depressed phase show a decided raising of this threshold to definitely pathological values.
5. This increase in the depressed cases falls to normal with the return to a normal emotional state.
6. The cases in the manie phase show a normal or perhaps slightly lowered value for this threshold.
7. The cases with hallucinations or delusions or both show when averaged a markedly higher threshold than the average of even the depressed cases. The average is obscured by the fact that it contains many nearly normal values obtained in manie cases. These symptoms, however, seem to indicate a more profound derangement of function, as the cases, whether manie or depressed, which showed them yielded the highest values in the group in which these cases fell.
8. The impression that variations in the sensory threshold for faradic stimulation are of central origin (derived from work on normal subjects) seems to be borne out by this group.

* The case numbers are: 2165, 4291, 3709, 1901, 3872, 3700, 11, 3860, 3886, 4228, 3734, 3585, 2057, 3837, 3687, 3896, 1764, 2153, 3640, 3895, 1970, 3862, 1868, and two cases, referred to me by Dr. E. E. Southard, which were not hospital cases.

9. The suggestion is made that the manic-depressive syndrome may be due to a perversion of function of certain parts of the central nervous system, possibly the thalamic centres, and that, contrary to Kraepelin's view, the symptoms of mania and depression may be due to opposite perversions of function.

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¹¹ Southard and Bond: Clinical and Anatomical Analysis of Eleven Cases of Mental Disease Arising in the Second Decade, with Special Reference to a Certain Type of Cortical Hyperpigmentation in Manic-Depressive Insanity. Read at Baltimore before the American Medico-Psychological Association, 1914, and submitted to the American Journal of Insanity.

¹² Southard, E. E.: A Study of the Dementia Precox Group in the Light of Certain Cases Showing Anomalies of Sclerosis in Particular Brain Regions. *Proc. of the Am. Med. Psych. Asso.*, May, 1910.

¹³ Southard, E. E.: On the Topographical Distribution of Cortex Lesions and Anomalies in Dementia Precox, with Some Account of Their Functional Significance. *Am. Jour. of Insanity*, Vol. lxxi, Nos. 2 and 3, Oct., 1914, and Jan., 1915, p. 382.

and the following conclusion was drawn from a series of 135 cases of mental disease (21 cases of dementia precox¹): "Interesting figures are available for cases of dementia precox, indicating that the paranoid forms have a normal threshold, whereas those classed as catatonic and hebephrenic have pathologically high thresholds. It is remarkable that the hebephrenic cases tested (two in number) showed some of the highest thresholds calculable (760). Eight catatonic cases averaged 232 (paranoid 131)." These remarkably concordant results have not been borne out by further study of this group.

That this series should not afford results which, by a test which has so far proved physiologically valid, are of diagnostic value, is not surprising when one takes into consideration the polyglot character of dementia precox as described by Kraepelin.² Furthermore, we are dealing here with the group in which the margin of error of the Psychopathic Hospital diagnoses is the largest—as judged by the further progress of the cases at the state institutions to which they are sent. This error is about 20%,³ and its size may be due in part to the fact that the other hospitals do not follow so strict a Kraepelinian grouping as is the case here. However, the very irregularity of the results will have some value as diagnostic evidence, and certain interesting observations as to the pathological physiology of dementia precox have been made. As to the latter, the more important deal with emotional tone and catatonic symptoms.

The method employed is that of Martin,⁴ slightly modified as described in a former paper. The results are expressed in beta units, which are units of "shock" given. In using this method of notation the higher the value the less sensitive is the subject tested. The material consists of 90 observations on 51 patients. Of these 90 observations three proved to be invalid, due to lack of coöperation on the part of the patient tested. These were on different patients who at some other time yielded a valid result.

The lack of correspondence between the clinical observation of emotional tone and the sensory threshold for faradism is the most striking feature of this series (*cf. Table I*). This observation is the more remarkable in contrast to the results obtained in the manic-depressive syndrome (*cf. Figure*), where the depression was a distinct factor in raising the threshold. In this group an explanation for this was suggested⁵ which was based on the histopathological evidence adduced by Southard⁶ and Bevan Lewis (quoted by E. E. Southard⁵). It was suggested that the maniacal states of manic-depressive insanity might be associated with a "tissue-simplification," affecting among others the receptor system, and that the depressed states might, on the contrary, be associated with a "tissue-complication" affecting this same system. Obviously, this cannot be true of the dementia precox group, and we are forced to the conclusion that the emotional tone in dementia precox is

VARIATIONS IN THE SENSORY THRESHOLD FOR FARADIC STIMULATION IN PSYCHOPATHIC SUBJECTS.*

III. THE DEMENTIA PRECOX GROUP.

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THE present paper deals with 51 cases diagnosed dementia precox, at the clinic of the Psychopathic Hospital, Boston, on which the sensory threshold for faradic stimulation has been determined by the Martin method.³ In the first work done with this method in this clinic the results in this group were surprisingly clean cut

* I wish to express my sincerest thanks to Dr. E. E. Southard for placing the clinical material at my disposal and for his invaluable help in reporting the results especially in suggesting the significant correlations.

† Being Psychopathic Hospital Contributions Whole Number 69 (1915.6). (*Bibliographical Note.*) The previous contribution was by G. P. Grabfield (1915.5), entitled "Variations in the Sensory Threshold for Faradic Stimulation in Psychopathic Subjects: II. Manic-depressive Insanity," published in this issue of the *Boston Med. and Surg. Jour.*, page 198.)

TABLE I.

Type.	No. Cases.	Male.	Female.	No. of Observations.	Limits of Variation.	Average Threshold.
Manic	12	10	2	16	61-777	187 B units
Depressed	30	20	10	52-3=49	72-743	186 "
Normal	9	6	3	22	73-518	188 "
Total	51	36	15	90-3=87	61-777	186 "

governed by a different mechanism than that which governs this process in manic-depressive insanity.

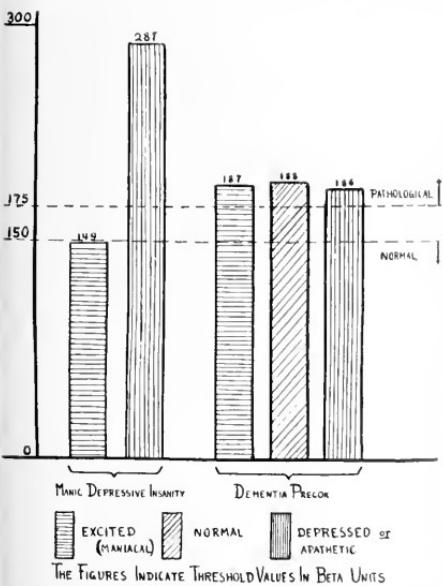
It is unfortunate that no definite results of diagnostic value have been brought out by this study. Of the entire series of 51 cases only 33% constantly yielded pathological values (over 175 beta units). Forty-eight per cent. showed a pathologically high threshold at some time. Thus 52% are found who have never shown anything but a normal threshold value, and 67% showed a normal value at some time. There were 21 cases who had more than one valid test made upon them. Of these cases only 9 (43%) showed at some time a pathological value. Although this group is not large, a consideration

values within the various groups makes it unlikely that this test will be of use in this direction.

In the consideration of this test from the viewpoint of differential diagnosis, one impression may be of value. Certain of the cases on repeated tests showed remarkable changes in the values obtained. This was more apparent the oftener the cases were tested. The interesting point about these changes was that they did not seem to follow any fixed rule nor were they capable of correlation with any clinical observation of the condition of the patient. In all other groups studied the values on repeated observation remained about the same or varied as the clinical picture varied. The only group in which anything similar has been observed is the Korsakoff cases. The data at present available on this point are very meagre, but it seems to be a line of investigation worth following.

A consideration of the cases showing a threshold value of over 200 Beta units at some observation (*cf. Table II*) brings out the fact that a very large fraction of these cases show symptoms of catatonia and somatic delusions. Fifteen such cases were found and of these 67% showed catatonic symptoms and 47% showed somatic delusions. Certain authorities¹⁰ deny the possibility of dementia precox without hallucinations. From two cases in this group no hallucinations were elicited. One case (No. 19263958) was markedly alcoholic, and it is probable that his hallucinations were due to alcohol. If these three cases are omitted from consideration, we are left with 12 cases in which the diagnosis of dementia precox is highly probable and who at some time showed a threshold value of over 200 beta units. Of these 12 cases, 67% showed symptoms of catatonia and 42% showed some somatic delusions. Southard^{6, 7} has correlated the symptoms of catatonia with post-rolandie cortical lesions, *i.e.* lesions in the sensory "arrival-platforms." He has also advanced the view, from evidence obtained at necropsy, that somatic delusions have their basis in fact perverted possibly by a disturbance of the receptor mechanism.⁸ The parallelism between these symptoms and high sensory thresholds, in view of the post-mortem findings, is suggestive.

A consideration of the cases showing at some observation a threshold value under 100 beta units revealed a remarkable dearth of catatonic symptoms and somatic delusions (*cf. Table III*). Nine such cases were found. Of these, 33%



of the above figures seems to make it justifiable to conclude that only about 50% of the dementia precox cases show a pathologically high threshold, even when tested more than once. In this connection, it is to be remembered that the cases passing through this clinic are as a rule not far advanced.

As to the value of the test in differentiating the types of dementia precox, as described by Kraepelin, the evidence at hand is not very satisfactory. However, the large variation of the

showed symptoms of catatonia and 11% showed somatic delusions, and 22% showed delusions which may possibly be classed as somatic. Eliminating from this group the cases from whom no hallucinations could be elicited and one case (No. 3583) whose hallucinations were

probably due to alcohol, we are left with six cases in which the diagnosis of dementia precox is highly probable and of which 17% (1 case) showed catatonic symptoms and these only of the vaguest kind. Seventeen per cent. showed somatic delusions and 33% showed delusions of

TABLE II.

Case No.	Hallucinations.	Delusions.	Symptoms of Catatonia.
2046	Aud. and vis.	Grandeur—Reference, Persecution (?)	Attitudinising.
3594	Aud.	Reference—Persecution	Attitudinising—Grimacing. Negativism—Resistivism.
3827	Aud. and vis. olfactory	Reference—Persecution	Apathy—Retardation.
1837	Aud. and ol- factory	Persecution—Somatic	0
3314	"Ringing in ears"	Reference	0
1926 3958	Aud.	Somatic (?)	0
1829	Vis.	Somatic.	Negativism—Resistive.
4001	0	Somatic	One outbreak—negativism—Resistive—Atti- tudinising.
2718	Aud. and vis.	Reference—Persecution	Apathetic—Retardation.
3552	Probable	?	Resistive—Negativistic—Attitudinises—Erotic —Bashful—Complete "blocking."
2078	Aud. and vis.	Somatic—Apprehension	Stuporous—Negativistic—Outbreaks—Atti- tudinising—"Blocking."
4422	Aud.	Somatic—Reference (?) Persecution (?)	Secretive—Seclusive—Mannerisms—Resistive.
4316	?	Persecution—Somatic Self-condemnation	Resistive—Outbursts—Apathetic, almost stu- porous.
2855	0	0	Apathetic—Attitudinising.
1109	Aud. and vis.	?	Silly—Outbursts—Negativism.

TABLE III.

Case No.	Hallucinations.	Delusions.	Catatonic Symptoms.
2121	0	0	Cerea flexibilitas—Outbreaks—Mannerisms— Negativism—Silliness—attitudinising.
3583	Visual	0	0
3952	Auditory	0	0
3678	Auditory	?	0
3900	Vis. and Aud.	Somatic — "Somebody influencing him by mesmerism or hyp- nosis."	0
1932	Visual	Somatic(?)— Grandeur(?)	0
3921	0	Persecution—Reference	Negativistic.
3751	Vis. and Aud.	"Being hypnotised" Somatic(??)	Playfulness with grimacing. Quite maniacal.
2397	Auditory	"House is haunted"	Silliness—Laughing—Occasional talk tack—Untidy—Always tired.

TABLE IV.

Type of Case.	No. of Cases.	No. of Observations.	Limits of Variation.	Average Threshold.
No hallucinations noted.....	24	42	73—518	164 B units
Visual hallucinations alone.....	4	7	124—743	"
Auditory hallucinations alone.....	10	14	61—490	121 "
Tactile hallucinations alone.....	1	1		169 "
More than one kind.....	10	21	72—512	224 "
Recorded as "Vague Hal.".....	2	2	309—777	543 "
Total hallucinated cases.....	27	45	61—777	208 "
Not deluded.....	15	25	73—777	240 "
Deluded.....	36	62	61—512	161 "
Both haluc. and deluded.....	21	35	61—512	161 "
Neither haluc. nor deluded.....	7	13	73—202	126 "

a vaguely somatic character. One of the cases excluded was a case of dementia precox which all agreed was of the catatonic form, and the stupor in which this case was throughout his stay in the hospital (No. 2121) may account for the failure to elicit either hallucinations or delusions. Thus in the group showing a low threshold value we find that only 17%—33% showed symptoms of catatonia and 11%—50% showed somatic delusions.

No relation could be traced with hallucinations nor with the various types of hallucinations (*cf. Table IV*). Delusions other than somatic were so variously designated that it did not appear feasible to record the types of this symptom as mentioned. Other than the somatic before mentioned, there appears to be no relation between the presence of delusions and the threshold value.

We have, then, found in a series of 51 cases diagnosed dementia precox, that the sensory threshold for faradism quantitatively measured does not afford results of diagnostic value in nearly two-thirds of the cases, that the concordant results of the first group of cases studied in this way are not sustained by this series, that the parallelism between high threshold values and catatonic symptoms and somatic delusions is suggestive in view of the evidence in regard to these symptoms, which has been found post mortem, that the correlation between the lowest threshold values and lack of these symptoms strongly supports the previous correlation, that the types of hallucinations and delusions (other than somatic) could not be connected with the threshold values, and finally that the irregular variations of cases repeatedly tested may have a significance diagnostic or otherwise which would be worth investigating. In conclusion, it is again to be noted that, even though the results of this series have not lead to conclusions of diagnostic value, certain observations as to the pathological physiology of the central nervous system in dementia precox have been afforded by the quantitative determination of the sensory threshold for faradism.

* The case numbers are: 292, 1109, 1829, 1827, 1926, (3958), 1930, 1932, 2055, 2056, 2058, 2078, 2079, 2121, 2154, 2178, 2326, 2347, 2350, 2353, 2397, 2715, 2855, 2851, 3314, 3539, 3562, 3583, 3594, 3644, 3678, 3724, 3751, 3760, 3764, 3882, 3900, 3921, 3948, 3952, 3984, 3991, 4001, 4145, 4164, 4277, 4316, 4321 (4505), 4330, 4334, 4422.

CONCLUSIONS.

1. The determination of the sensory threshold for faradism shows that pathological values are constantly obtained in only about one-third of the cases of dementia precox and hence that this determination is of diagnostic value only in this percentage of cases.

2. The mechanism governing emotional tone in dementia precox appears by this test to be different from that which governs this phenomenon in manic-depressive insanity.

3. The correlation of catatonic symptoms with high threshold values parallels the correlation between these symptoms and post-rolandic cortical lesions. From this it is probable that the "arrival platforms" for faradic stimuli lie in the post-rolandic region.

4. The correlation between somatic delusions and high threshold values is evidence in favor of the suggestion that these delusions are associated with a perversion of the receptor mechanism.

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Reports of Societies.

CLINICAL CONFERENCE OF THE NEUROLOGICAL INSTITUTE, NEW YORK.

REGULAR MEETING, APRIL 22, 1915.

DR. J. RAMSAY HUNT, in the Chair.

GLIOMA OF FRONTAL LOBE, WITH NOTES ON ASPIRATION OF THE BRAIN FOR DIAGNOSTIC PURPOSES.

DR. PEARCE BAILEY AND DR. CHARLES A. ELSBERG presented the following case as a contribution to the symptomatology of frontal tumors, and also because positive diagnosis as to the approximate site and exact nature of the tumor was established during life.

A civil engineer, aged 50, had been actively engaged in his profession until Feb. 1, 1915. At that time, when called upon to give an expert opinion regarding bridge building before a commission, he was unable to express himself in a way that the commission could understand him and was released as a witness. A few days after this, he awoke early one morning with an attack of vomiting. At about the same time he began to complain of dull pain through the centre and base of the head. Up to this time he had been a perfectly healthy and normal man, but from this time onward he became more and more incapacitated, largely by reason of his mental symptoms.

Mental Symptoms. These in the first instance consisted in the so-called Witzelsucht. He would burst out laughing when the simplest question was put to him, and if he tried to answer it, the answer would be accompanied with explosive laughter. He also became very profane in his remarks, which was quite contrary to his previous custom. Associated with this condition was a certain amount of hebétude, which deepened as the case progressed. At first he would be merely inattentive and not particularly talkative, but later he would sit for hours without paying attention to what went on about him and without volunteering any remarks at all. He gave up reading almost altogether, although he could read, could understand what he read, could write, and had no definite symptoms of aphasia, although he occasionally made a misuse of words. There was no apraxia. An indication of the mental hebétude was furnished early in the disease, by lack of care of his person. He would void urine in his clothes or in bed and would make no effort to remedy or call attention to the accident. Later in the disease, on several occasions there was the same trouble with the bowels. These disturbances were not the result of any sphincter trouble.

Eye Symptoms. The only trouble with the ocular apparatus was slight swelling of both discs, mostly on the right side. This was hardly enough to merit the term "papillitis," and increased only moderately while he was under observation. The direct compression symptoms described by Kennedy in regard to frontal tumors was absent.

Other Cranial Nerves. The cranial nerves were normal with the exception of a slight weakness of the left face and a slight deviation of the tongue to the left. These were never pronounced, and if they had not both been on the same side might almost have passed as normal physiological variations.

Motor Symptoms. With the exception of the

anomalies of the face and tongue, just mentioned, there were no motor disturbances. There were no paralysis, no tremors, no incoordination. Patient could walk, use his hands, and retained his strength.

Reflexes. The deep reflexes presented strange anomalies. At times the knee jerks would be almost absent, and at other times hyper-active, without any apparent cause to account for these changes. At one time the left Achilles jerk disappeared, to return again and become normal.

X-ray Findings. A large number of radiographs were taken of the skull and of the cranial sinuses, without revealing any facts which had bearing on the cerebral condition.

Serological Examinations. Both blood and cerebrospinal fluid were negative to the Wassermann reaction, the former was also negative after a provocative Wassermann test. The cerebrospinal fluid contained 16 cells and an excess in globulin.

Clinical Evolution. Before the operation, the patient was under observation about five weeks. During this time there was a progressive involvement of mentality, so that the original Witzelsucht merged into a general condition of hebétude. There was no persistent vomiting, but toward the end of the period of observation the patient vomited several times. The carelessness about his person increased. It was difficult to tell whether or not he suffered pain, as he did not express himself freely, but the nurses thought that at times he had considerable headache. The only evidence of increase in intracranial pressure was a slight increase in the swelling of the optic nerves.

Diagnosis. The patient was running down hill so persistently that it became necessary to determine promptly the nature and position of the disturbance, which was plainly intra-cranial. The absence of any specific disease or of any vascular disease, made a diagnosis of localized intra-cranial trouble almost certain, and the predominating mental character of the symptoms, the practical absence of all other symptoms referable to focal regions, seemed to indicate the frontal lobes as the seat of the disturbance, although it was impossible to tell on which side of the brain the disturbance was. The choice as to the nature of the disturbance seemed to lie between an abscess and tumor, and to determine these two points, which could hardly have been determined in any other way than by exploration, exploratory interference was undertaken.

SURGICAL NOTES.

DR. ELSBERG: We considered it advisable to do an exploratory puncture over both frontal lobes, rather than in the beginning to do a large exploratory operation. Inasmuch as it was impossible to say with certainty whether the disease was in the right or left frontal lobe, we determined to aspirate these regions for diagnostic purposes. The typical Neisser puncture we considered inadvisable because of the danger of injury to the pial vessels. The following procedure was, therefore, adopted:

Under ether anesthesia and through a small incision over the right frontal lobe a button of bone was removed, a small incision in the dura made and the frontal lobe punctured in several directions. No fluid was obtained; the small cylinders of brain tissue obtained were preserved for microscopical examination. The same procedure was repeated on the left side. The brain tissue obtained from the right side was of very soft consistency, while that of the left was much more firm. The buttons of bone

were returned into place and the small scalp wounds sutured.

The patient recovered from the operation without incident.

The pathological report was: Tissue from the right frontal lobe—normal; tissue from the depth of the left frontal lobe—glioma of the infiltrating type.

REMARKS.

By this simple procedure, it was possible to make the diagnosis of irremovable tumor of the left frontal lobe and to save the patient a more extensive operative procedure. I have made use of this procedure in a number of instances and have found it of the greatest value. As above stated, I consider the Neisser puncture dangerous, but the method here described is practically non-dangerous, because through the small opening in the skull and dura a portion of the brain free from blood vessels can be selected for the puncture. By this method of diagnosis it is possible to locate an otherwise unlocalized growth and to determine the nature of that growth or to discover the location of an abscess. The microscopical examination of the small cylinders of brain tissue removed by the needle will tell one not only whether disease is present, but the nature of that disease, and in a number of instances I have been able to find the disease, to determine its nature and to come to the correct conclusion as to its operability by this method. I have been able to save unnecessary and useless operative procedures, and, on the other hand, have made more certain my indications for operative interference in removable growths. The method deserves far more extensive use than it has heretofore.

CASE OF CHRONIC PROGRESSIVE CEREBELLAR TREMOR WITH ARGYLL-ROBERTSON PUPILS.

DR. HENRY K. MARKS presented from the First Division the case of a tailor, married, 67 years old. His family history is quite negative. At the age of eleven he had a traumatic infection of the left hand. About the same time there occurred what was apparently an osteomyelitic affection of the right shin, which persisted for a number of years. At the age of 22 he contracted gonorrhea. Syphilis is denied. His wife, a healthy woman, has been childless. There have been no miscarriages.

Always a temperate man, he enjoyed excellent health, never missing a day's work up to twelve or thirteen years ago. From this time dates his present illness. While riding to his work one morning, without premonitory symptoms of any sort, he suddenly felt a sharp, stinging blow just beneath the occiput. He was dazed, perhaps even unconscious for a few seconds, fell back in his seat and was unable to articulate distinctly. Friends supported him to his shop. He walked as if drunk, reeling from side to side. The following day he went to work as usual. He felt rather weak but his gait was now natural. He noticed, however, that his speech was disturbed, stuttering as he described it, but without any aphasic element. This cleared up entirely within a couple of days.

The next two weeks, except for an indefinite feeling of weakness and an occasional mild dizzy attack, were uneventful. Then he noticed that his hands, particularly the right hand, were beginning to grow unsteady, to shake while at work. The tremor, slight at first, has since then slowly but

steadily increased, occurring at rest, though to a much less extent as well as on movement. Up to a month ago, however, he was still able to thread a needle and sew.

Other symptoms which have appeared since the onset of the illness are an alteration of his speech, first becoming noticeable a few months after the appearance of the tremor; a shaking of the head of four or five years' duration; a weakness of his legs of one year's duration to which shakiness, as on stooping, has been added during the past three months. All these symptoms have shown a slow, gradual progressive course.

In his boyhood he suffered from periodic headaches of a migraine type, but since the age of fourteen or fifteen he has been quite free from headaches of any sort. For the past year or so he has had an occasional mild attack of dizziness. His memory shows no gross impairment; for two years or so, however, he has had less emotional control. His special senses—eyesight, hearing, etc., have not been affected. His general health is very fair. He eats and sleeps well and has good sphincter control.

Physical Examination. The patient is a short, stocky man of flabby musculature. His serum Wassermann is negative. His blood pressure is 160; his urine shows a trace of sugar. Otherwise general examination reveals nothing noteworthy.

His pupils are pin point in size, the left slightly greater than the right. They give no reaction to light, but converge well on accommodation. Ocular movements upward and downward are, perhaps, somewhat restricted. Other abnormalities are lacking. He shows defective voluntary control over the corrugator and frontal muscles, the left angle of the mouth sags a little, but there is no definite evidence of seventh nerve involvement. His tongue is protruded straight, is tremulous and shows a tendency to be drawn in and out of the mouth. Otherwise the cranial nerves are negative.

His musculature is flabby, range of movement in all the joints except for traumatic restriction of the left index finger, is normal. There is no hypertonia. Power is very fair, quite proportionate to the muscular development.

His arm reflexes are present, equal; his knee jerks active, the right slightly greater than the left; the ankle jerks are present and equal. Plantar stimulation gives a flexor response, Babinski, Oppenheim and clonus are absent. The epigastric and abdominal reflexes are present, though sluggish. Sensation both superficial and deep, shows no disturbance, whatever.

A casual glance at the patient reveals his striking and essential characteristics. I refer to a constraint, a fixity of his facial and body expressions and to his tremor. His face has a mask-like quality, his head is lightly flexed on his chest, his shoulders stooped. He carries his limbs close to his body. His movements are all slow.

Standing, his whole body is seen to be agitated by a tremor. His head nods, his lips tremble, his arms show an up-and-down excursion from the shoulders, his chest and abdomen show a fine longitudinal movement, with something of a rotatory character added and a slight tremor occurs in the legs, especially in the region of the knees. The oscillations are not continuous nor perfectly rhythmic, and vary from 80 to 140 per minute. At times, when the patient is perfectly quiet and does not feel himself observed, the tremor may practically disappear. It is increased by exertion and

emotion. Sitting tends to decrease the tremor and lying down even more so.

The hands with arms at rest usually tend to assume the pill rolling attitude, but the tremor itself is, as a rule, slight. With the arms outstretched a coarse longitudinal and rotatory tremor of the hands occurs, which is even further increased on raising the arms above the head. The right arm is somewhat more affected than the left. Initial movement tends to decrease or even to stop the tremor, sustained effort to increase it. In the finger-nose test we detect no ataxia, no dysmetria in the sense of over-reaching, but a tremor of the intentional type. It begins toward the close of the act and becomes so marked and intense that a sustained position is impossible. Alternating movements are slowly and clumsily performed and the rhythm is quickly lost. In the legs slight oscillations occasionally occur toward the close of the heel-knee test. Ataxia dysmetria and asynergia are absent.

There is no Rombergism in the strict sense. Instability increases on closing the eyes, but this is apparently due to increases of the tremor.

The patient's gait is somewhat broad based with a slight waddling tendency. It is not of the *petit pas* type nor propulsive. His vertebral column is rather rigid as a whole.

REMARKS.

We have, then, the history of a slow progressive tremor of thirteen or fourteen years' duration. General symptoms of cerebral disease are absent, likewise symptoms referable to the vestibule apparatus. How are we to regard this case? Obviously there are certain superficial resemblances to Parkinson's disease. Various objections may be raised; the mode of onset of the disease, the absence of muscle hypertonia, the fact that the tremor at rest is least marked or may be wanting altogether while it is invariably increased under dynamic conditions, that tremor of the intentional type is present, that the gait is in no wise characteristic. Granted that these deviations may be regarded singly as merely atypical and granted that all of them may have been recorded in cases considered Parkinson's disease, still in their totality they are significant. The suspicion against Parkinson's disease is further increased by the Argyll-Robertson pupil.

Our knowledge of the pathology of paralysis agitans is still too obscure to allow us to venture an assertion as to the seat of the disease. The recent work of Wilson on progressive lenticular degeneration has turned the attention again to the basal ganglia. But the basal ganglia have an intimate connection with the cerebellar tracts. On this hypothesis it is unreasonable to suppose that a disease process interrupting these connections will not produce a disease picture resembling more or less Parkinson's syndrome! In other words, have we not to do in this case with a lesion somewhere along these connecting tracts?

The patient as I conceive it is a syphilitic. The sharp stinging blow he felt in the occiput thirteen years ago was a vascular accident, probably a thrombus occurring on a syphilitic basis in the cerebellum. The initial symptoms, you may remember, were slow stuttering speech and a reeling gait. The symptoms were short-lived followed by the group above recorded. Among them we may still find a cerebellar component in the tremor of

the intentional type, the broad-based gait with its suggestion of reeling, the slowness and awkwardness of alternating movements, the slow and labored speech. Whether the lesion be an inflammatory one or a bilateral systemic one, as in posterior column degeneration, which seems the more probable, we cannot, of course, definitely say.

In many of its aspects, the case resembles a type of progressive cerebellar tremor described by Dr. Ramsay Hunt (Brain, 1915). This affection is characterized by the gradual progressive development of intention tremor, associated with dyssynergia, dysmetria, asthenia of intermittent character and slight hypotonia. (The dyssynergia cerebellaris progressive.)

INTENTION TREMOR OF THE LEFT ARM ASSOCIATED WITH CHOREIFORM MOVEMENTS, DEVELOPING DURING PREGNANCY.

DR. ROBERT E. POE presented from the Second Division, an American Jewess, thirty years of age, with the following history: She was entirely free of her present affection until her 27th year, and with the exception of measles, gave no history of previous disease. Menses began in her thirteenth year, stopped until the seventeenth, and since then have been normal. A search into the family history reveals nothing of importance, except the fact that she has a brother 35 years old who was always weak-minded, and who has been in the Manhattan State Hospital since his nineteenth year. At that place he is considered an imbecile, and is declared to be free of any physical neurological symptoms. About the age of 21 the patient contracted an illicit union with a man to whom she bore two "instrumental" children. The first of these, born six years ago, died at the age of six weeks, probably of tuberculosis. The second is a healthy boy of five years. During her second pregnancy, the patient received an accidental blow in the small of her back, which, however, did not interrupt the pregnancy, and was not followed by any untoward symptoms.

The present illness dates back three years, when the patient noticed the gradual onset of cramping, aching pains in her left arm, not constant, but coming on every three or four hours, and lasting for a few minutes at a time. After two or three weeks of these pains she began to have involuntary movements in the left arm and hand, increased by purposive motion. She went to the Lying-in Hospital, where a diagnosis of acute chorea was made. She now felt tingling sensations in her left face, arm, trunk and leg, accompanied by a subjective weakness in the left side.

The patient was sent to the Neurological Institute at this time, being then in the fourth month of pregnancy. She showed a peculiar, rhythmical, choreiform tremor of the left arm and hand, made distinctly worse by efforts to coördinate. This tremor was accompanied by a choreiform twitching of the mouth, and a hesitating, explosive speech. The right hand and arm were normal. Knee jerks and ankle jerks were equal on the two sides. There was a suggestion of hypoesthesia in the left side, but the meager intelligence of the patient left this in doubt. Dr. Holden found the pupillary reaction good in a bright light, but sluggish when the light was thrown in by a mirror. The pupils were equal, the mobility of the eyes was normal, and the vision as well. There was no nystagmus, and the fundi were normal. Excessive concentric contraction of the color-fields was noted, and at times, unocular

diplopia. The left cornea was slightly anaesthetic. Dr. Holden thought the findings suggested hysteria. The Wassermann was negative.

The patient returned to the Lying-in Hospital in May, 1912, where her uterus was emptied of a macerated fetus, the age of which was not estimated. A blood count showed 4,240,000 red cells, 80% haemoglobin. Numerical white blood count not made. Differential white count normal.

Within the last three years the patient has been seen regularly at the Institute, and her condition has undergone but little change, except an additional tremor of the right hand, seen only at times, and never increased by purposive movement. She also complains at times of "sticking" sensations in the right arm. A year ago she was married to the father of her children, and has since had two inevitable abortions at about the third month of pregnancy.

A recent examination reveals a small, pale, undernourished woman, thin almost to the point of emaciation. She walks with a peculiar, somewhat choreiform gait, and shows a coarse, bilateral tremor of the arms and hands, much more marked on the left side. The right hand can be well coordinated, but the left tremor is greatly increased by purposive motion. Much of the time the right-handed tremor is not seen, but that of the left arm and hand is constant except during sleep, when all the tremors cease. It is fairly rhythmical, about three to the second, and so continuous that the patient tries to overcome it by grasping the left hand between her knees, or holding it with her right. Combined with these tremors of the hands is a choreiform movement of the mouth, while her speech is hesitating and explosive. In the recumbent posture a fairly constant choreiform movement is seen in both feet, and associated movements are easily elicited.

There is no evidence of unilateral weakness of arm or leg, but a suspicion of weakness in the left face is noted. Adiadokokinesis in both arms. No fibrillations, no nystagmus.

The deep reflexes are generally increased, the right knee jerk being slightly more marked than the left. A moderate clonus, seen in both feet, is quickly exhaustive.

Among the skin reflexes the epigastries can be only faintly elicited, the abdominals not at all. As to the plantar reflexes, it is difficult to decide, as the reaction is obscured by the choreiform movement of the toes. While the Babinsky reaction is uncertain, there is a fairly constant Oppenheim and Gordon, and a crossed extensor reflex is occasionally seen in the right big toe.

Dr. Holden finds the eyes about as they were three years ago: Vision and fundi normal; marked concentric contraction of the color-fields, and at times, a uni-ocular diplopia. Pupils slightly sluggish to reflected light, but react promptly to a bright one.

Pharyngeal reflex normal. With the exceptions above noted, the cranial nerves are normal.

There are no sensory changes, no astereognosis. The back is flexible, and not tender, there are no deformities, no trophic disturbances, no change of tonus, no mechanical restrictions. There is no change in emotional innervation of the facial muscles; and, while the patient is apt to weep at the recital of her domestic wrongs, there is no forced crying or laughter.

Dr. Kaplan finds a positive Wassermann reaction in the blood. The spinal fluid is negative.

Heart and lungs negative.

The posterior cervical chain of glands is distinctly felt, small and "shotty."

REMARKS.

This case has been thought to be of interest because of the somewhat atypical character; the peculiar tremor, the intentional element of which is wholly confined to the left arm, where it is very marked; its non-progressive course; the absence of definite remissions; and in sum, its difficulty of diagnosis. The nature of the onset and the probable existence of lues strongly suggest a vascular lesion of syphilitic nature, located somewhere in the cerebello-rubro-spinal tract.

Oppenheim reviews the subject somewhat as follows: Hemichorea and hemiathetosis have so often followed lesions of the optic thalamus that they were at one time assigned to that region. On the other hand, experience seems to prove that not alone lesions of the pulvinar, but excitations of the neighboring pyramidal tract are responsible for the phenomena. Eventually the hypothesis was advanced that affections of the motor cortex and lesions in close proximity to the motor tracts also give rise to these symptoms. Charcot and Raymond found the lesion in one case in the internal capsule. The followers of Kahler and Pick, however, attribute the phenomena of hemichorea and hemiathetosis to lesions of the central thalamic nucleus, the lentiform nucleus, the sub-thalamic region, the red nucleus, the anterior cerebellar peduncle and cerebellum. Monakow conceives in such cases a continuous excitation in the thalamus and mid-brain of those centripetal fibers whose destination is the motor cortex. Anton suggests an antagonism between the optic thalamus and lentiform nucleus, and ascribes to the latter body an inhibitory influence on automatic movements. Destructive lesions of the lentiform nucleus and its outgoing inhibitory tract would, therefore, allow the untrammeled play of involuntary impulses from the thalamus. Bonhöffer and others locate the causative lesion among those fibers which pass from the cerebellum to the thalamus by way of the brachium conjunctivum, and then to the cerebral cortex. Some observers modify Bonhöffer's theory by raising the question whether the phenomenon be one of stimulation or destruction of the tract. Halban and Infeld seek to reconcile the theories of Anton and Bonhöffer. Wilson and C. Vogt have both reached the conclusion that the corpus striatum exercises an inhibitory influence upon the cortico-spinal tracts, and that it does so through the medium of the lenticulo-rubro-spinal system.

Oppenheim himself sums up as follows: Such post-hemiplegic results as hemichorea and hemiathetosis may be called forth by direct or reflex excitation of the automatic motor centers in the optic thalamus.

1. By small lesions which lie in the thalamus and act as excitants.
2. By the injury to those sensory fibres which pass from the cerebellum to the thalamus by way of the brachium conjunctivum.
3. By interruption of inhibitory impulses passing out of the corpus striatum and lentiform nucleus.
4. By cerebral accidents of childhood which damage the motor cortex, thus bestowing an unwanted freedom upon the involuntary motor centers in the thalamus.

COLLEGE OF PHYSICIANS OF
PHILADELPHIA.

MEETING OF WEDNESDAY, APRIL 7, 1915, AT 8 P.M.

The President, DR. JAMES C. WILSON, in the Chair.

SARCOMATOUS DEGENERATION OF A FIBROMA OF THE UTERUS FIVE YEARS AFTER X-RAY TREATMENT FOR PRESSURE AND HEMORRHAGE.

DR. GEORGE ERETY SHOEMAKER: The treatment of fibromata of the uterus by non-surgical methods is a subject of such importance that all data upon the subsequent behavior of such growths should be carefully recorded. Of peculiar importance is the question whether the sarcomatous or other forms of malignant degeneration are less liable to occur after treatment by the x-ray or radium, or whether they occur at all. While no exact percentage can be given, sarcomatous degeneration is a definite risk in untreated fibroma of the uterus. Certain writers have argued that after x-ray treatment no cases of malignancy have been observed. It is obvious, however, that not until the end of a patient's life can it be stated that malignant degeneration will not occur.

The patient whose history is recorded was known to me through conference with her physicians for many years. She finally developed sarcoma in a fibroid tumor about seven years after x-ray treatment was begun, and five years after it was stopped. The patient, who is now 56 years of age, underwent at my hands nineteen years ago an operation for laceration of the perineum in consultation with Dr. John H. Musser. She then had no tumor. She was not seen again until April, 1914, when she was referred for operation. I removed a large tumor, which proved to be a sarcomatous degeneration of a multiple fibroid of the uterus. A very smooth recovery followed abdominal hysterectomy. One year after the operation she reports herself entirely well. It is the complications of fibroid tumors which render them important. In the study of end-results time is necessary. That treatment is indicated which best eliminates the complications as well as the tumor and which preserves, if possible, sexual characteristics. This treatment in a large proportion of cases is surgical.

DR. JOHN A. McGLINN: We must acknowledge that fibroid tumors of the uterus can be cured by x-ray therapy and that the method has a very important place in the treatment of neoplasms. Whether the treatment can entirely replace surgery is problematical. Hysterectomy for fibroids has a definite mortality. In the hands of the trained gynæcologist I believe this mortality is not over 1½ to 2%. According to the statistics of Mayer the x-ray causes the entire disappearance of a tumor in comparatively few cases. While statistics may be quoted showing that cases treated by the x-ray have not shown late degenerative changes, Dr. Shoemaker has reported a case tonight in which such change occurred, and other cases are known, both published and unpublished. I believe that at the present time surgery is the best treatment for fibroid tumors of the uterus, unless the patient is in such a condition as absolutely to contraindicate its use.

DR. SHOEMAKER, closing: During one month this winter I successfully did hysterectomy for four

fibroids complicated with large cysts or large pelvic abscesses. This illustrates that the complications are often very formidable and that they are very common.

A SYMPOSIUM ON NATIONAL HYGIENE.

THE ORGANIZATION AND ACTIVITIES OF THE INTERNATIONAL HEALTH COMMISSION.

JOHN A. FERRELL, M.D., Assistant Director-General, International Health Commission: At the suggestion of the chairman of your committee on public health I shall attempt to outline the development of the International Health Commission. The commission was created in June, 1913, by the Rockefeller Foundation for "The promoting of public sanitation and the spread of the knowledge of scientific medicine." Its immediate task contemplates the extension of measures for the relief and control of onchocerciasis or hookworm disease to those countries and peoples where conditions invite. Active measures are in progress in several territorial units in the Southern States, Central America, the West Indies, British Guiana, in South America, and Egypt; and other countries have signified a desire to have the co-operation of the International Health Commission. This commission was the natural outgrowth of the Rockefeller Sanitary Commission, organized by Mr. John D. Rockefeller in 1909, and granted a million dollars to be used during the ensuing five years toward the eradication of hookworm disease in the United States. This commission was composed of thirteen of the country's leading educators, physicians and business men. Mr. Wickliffe Rose was selected as administrative head of the work. The State Board of Health of each state was selected as the agency through which to undertake the work. Eleven states invited and received the co-operation of the commission. The educated public soon began to regard hookworm disease as a problem worthy of serious consideration. The disease was found to exist among from 10 to 90% of the people. By the close of 1914 the number of persons in the South microscopically examined was 1,273,350. The number treated and reported, 694,516. Of 12,305 persons in twelve communities, 75% were examined; 26% were found infected; and 94% of these were treated and probably cured. Twenty-nine per cent. of these were actually re-examined after a course of treatment and all found to be cured. In these communities there were 2357 homes. Fifty per cent. of them in the beginning had no kind of a privy and those present were seldom ever sanitary. When the work closed 88% of the houses had privies, and 81% were of an improved type. This intensive work has been carried one step further in British Guiana by the International Health Commission, under Dr. H. H. Howard, director for the West Indies. There are two staffs at work, under the general supervision of the surgeon-general, a sanitary, and a medical staff. The sanitary staff, financed by the government, enters the area first. When this staff completes its work it moves to another area, leaving in the district sanitary inspectors, employed permanently by the government, to insure the maintenance of the improved sanitary conditions. The medical staff, financed by the International Health Commission, aims at the examination of every person in the working area, and the treatment until cured of every person found infected. Both staffs

have made admirable successes and there is promise of wider application. The Rockefeller Sanitary Commission accomplished all that was expected by its founder and paved the way for the International Health Commission. In considering this larger work, Mr. Rose in 1911 set to work to collect, from all countries of the world, the available information on the distribution and prevalence of hookworm disease; the extent to which it was a handicap to the health and working efficiency of the people, the agencies at work toward its control; the results secured; and the methods employed. The results of this study indicated that the disease prevails in a belt of territory encircling the earth for thirty degrees on either side of the equator, inhabited by more than a thousand million people; that "the infection in some nations rises to nearly 90% of the entire population"; that the disease has probably been an important factor in retarding the economic, social, intellectual, and moral progress of mankind; and that "little or nothing is being done toward its arrest or prevention." In August, 1913, Mr. Rose went to London on invitation, with a view of establishing work in the English dependencies. The English government pledged its active co-operation in the work, and appointed an advisory committee to co-operate with the commission in the colonies, and the British West Indies appeared to all the logical region for beginning work. Barbadoes, Trinidad, British Guiana, Grenada, St. Vincent, St. Lucia and Antigua were visited by Mr. Rose. In 1914 he gave special attention to Egypt, Ceylon, the Federated Malay States, and the Philippine Islands. Dr. J. H. White was secured for a year from the U. S. Public Health Service to establish the work in certain of the Latin-American countries. In the West Indies Dr. H. H. Howard is now directing the work. Dr. Victor G. Heiser of the U. S. Public Health Service is to give general supervision to activities started in Egypt, and immediate direction to the extension of the work to other countries of the East as conditions favor. The work of the present year will cost the commission approximately \$400,000, which amount is supplied by the Rockefeller Foundation. Mr. Rose, the director-general, is open to suggestions regarding other fields of activities to be entered by the commission. I think I shall violate no confidence in saying that he has been giving considerable thought to the training of workers in preventive medicine. He recognizes also the pressing need in many countries of facilities for the care of the sick. The attack on hookworm disease has led to the consideration of a similar attack on such diseases as yellow fever or malaria. Other fields may open offering more fruitful effort in accord with the paramount aim of the commission, which is to help the countries to help themselves in bringing into activity their own working agencies with their own resources.

THE RECENT HEALTH MOVEMENT IN THE UNITED STATES, WITH SPECIAL REFERENCE TO INFANT WELFARE WORK.

By DR. JOSEPH S. NEFF.

DISCUSSION.

DR. A. C. ABBOTT: It is startling to realize that in an area of 30 degrees north and south of the equator, and encircling the world there resides a population of about 100,000,000 people, approximately 90% of whom are suffering from parasitic

ailments that rob them of their efficiency. To bring the matter more nearly home, the survey made by the Rockefeller Foundation of eleven of our own Southern states, with a total population of more than 2,000,000 of people reveals a like condition. Many of these people are incapable of effective work and thousands of the children are unable to profit by the education offered them. It is fortunate that the disease is easily cured, and that in the majority of instances it leaves no structural defect. Restoration to efficiency of this large part of our population must be looked upon as of the greatest economic importance. I am delighted that Dr. Ferrell has given us a chance to hear of the work of the International Health Commission, and I believe I speak for the college when I say that everything that lies in our power to forward that work will be gladly done.

DR. S. LEWIS ZIEGLER, Director of Health and Charities: I am much interested in the problem of the hookworm disease in the South presented by Dr. Ferrell, and the baby welfare problem in the North, discussed by Dr. Neff. I think Dr. Abbott has struck the keynote of the subject in his reference to it as an economic proposition, and this is the argument we have to use in order to secure funds for such work. The only thing that will bring about progress in the public health is a united community. I think any one convinced of the rightfulness of a question in which human life and health are involved will grant that which is necessary. The question of child hygiene is very close to all of us, and no one has done more in that direction, probably, than Dr. Neff. The problem is so vital that we should make every endeavor to demonstrate that our sole purpose is to bring about the greatest good to the greatest number.

DR. J. CLAXTON GITTINGS: Emphasizing some points concerning the infant welfare movement I may say that ignorance, and not poverty, is the chief cause of infant mortality; the properly selected and properly trained nurse, acting under proper supervision, who serves as the educator, adviser and counsellor of the poor upon matters related to health, is the logical cure for infant mortality; a division of the department of health devoted to child hygiene and employing an adequate number of nurses would aid largely in the reduction of this mortality. The chief causes of infant mortality are over-crowding, poor housing, poor hygiene and improper food. Poor housing and over-crowding are economic matters. When parents know the evil effects of these conditions they will move. Poor hygiene can be corrected. Improper food for the baby means improper preparation, and that means ignorance on the part of the mother. A series of evenings would be required to demonstrate what the nurse can accomplish in the education of the ignorant and superstitious mother in the care of the baby. It is the city's duty to conserve the health of its embryo citizens. I fear there are a few physician who look upon an attempt to ameliorate the conditions in the slums as Utopian. When we see the men and women who are making these problems their life study, and when we see the actual results in the reduction of infant mortality, the greatest skeptic must admit that the movement is past the experimental stage, that it is not an idealistic dream, but a feasible method for saving infant life, which has an almost infinite range of possibilities, dependent upon the extent to which the municipality aids and encourages.

Mr. JOHN A. VOGLESON, Chief of the Bureau of Health: As I followed Dr. Ferrell's paper two distinct lines of endeavor in public health occurred to me: (1) Research work, which is of high importance; and, (2) work which more directly concerns the daily operation of the health department, namely, the practical application of knowledge already possessed, which was so well expressed by Professor Fisher in his careful analysis and report in 1908 on The Conservation of the National Vitality, when he said that the problem of prolonging life could be met to a great extent by the application of the knowledge already possessed by well informed persons of the medical profession, to a reasonable degree in a reasonable way. That is what we are trying to do in the Health Department of Philadelphia. In 1892 over 30% of our total mortality occurred in children under two years of age. At that time the children under two years of age represented 3½% of our population. In 1910 we had the beginning of our work in child hygiene in the Health Department as an organized line of endeavor. At that time the mortality for the year among children under two years of age was 25% of the total mortality, but they represented about 4% of the whole population. Passing through a shorter period to 1914, the mortality among the same group of children dropped to 20% of the total mortality, and they still represent about 4% of the whole population. In tuberculosis and diseases of the respiratory tract we have the next highest mortality. In the Bureau of Health today we are receiving an increasing coöperation by all classes of people. This is notably true in connection with the milk supply of the city. Our Child Hygiene Division began in 1910 with a small and devoted band of nurses, and without exception, every district to which a city nurse has been assigned has shown a lessened infant and general mortality.

Dr. SENECA EGBERT: The first decade of the last twenty-five years represented a period almost of inertia upon the part of the laity and of the medical profession concerning public health. The second decade showed an awakened interest, and the last five years have revealed a remarkable activity on the part of the public and the profession. No one can predicate the economic results of the work outlined by Dr. Ferrell. We may all take much pride in the fact that so much of this work is in the hands of men of the American medical profession. We have reason to be just as optimistic in the matter of the reduction of infant mortality. Credit is due to every department of the Health Bureau for improvement in public health. The medical inspection of schools is under the direction of Dr. Cornell. Many do not yet realize the value of the new water system in the health of the city and that for the money invested we have a return of over ten million dollars annually in the saving of life, and health and money capitalization to the city.

Dr. RANDLE C. ROSENBERGER: Infantile mortality, due to whatever cause, is the most vital question in child welfare. Were it possible that pregnant women might be excluded from occupations injurious to health and rest given to the mother before birth, or the establishment, as in France and Germany, of a law protecting the mother against want during pregnancy and the puerperal state, by financial aid up to six weeks, nursing money to the twelfth week, and medical aid given, it would be a glorious undertaking. It is claimed that in France since the establishment of motherhood insurance in-

fantile mortality has decreased 50%. Education regarding the care of the child should be insisted upon. Girls should be given a course of instruction upon the care of children and in child hygiene fitting them to become teachers or mothers. The helpless child must be looked after by legislation and social endeavor. There should be coöperation of parents in the promotion of child hygiene. Recreation should be educational as well as a matter of amusement. Of the hygiene of the teeth too much cannot be said, and it must be remembered that facial deformity and nasal stenosis may be prevented, according to Bogue, by operations upon the temporary teeth of young children. It is claimed that 65% of feeble-mindedness is hereditary. Regarding the other 35% there seems to be a contrariety of opinion whether sterilization or segregation is the better means of treatment.

Dr. FERRELL, closing: I count it a great privilege to be here this evening, and to hear the discussions that have been presented. We face everywhere the problem of funds adequately to conduct health work. We are endeavoring to determine what will constitute the smallest working unit. In the rural districts it may be a school district, perhaps a township. In the cities it may be only a block. If we can decide upon a plan of work effective for that small area, and determine the cost of the work for that unit we could have definite information to present to the people. After intensive work for a few months in the small area we could give to the people convincing information and show that to have the same benefits in larger measure it is only necessary to multiply such areas, and that for this funds would have to be forthcoming.

Book Reviews.

The Ductless Glandular Diseases. By WILHELM FALTA. Vienna. Translated and edited by MILTON K. MEYERS, M.D., Neurologist to the Lebanon Hospital, Philadelphia. With a Foreword by ARCHIBALD E. GARROD, M.D. (Oxon.) F.R.C.P., (Lond.) F.R.S. Physician to St. Bartholomew's Hospital, London. Philadelphia: P. Blakiston's Son and Company. 1915.

The work of Biedl in Germany, Naamé in France, and of Schäfer in England has already placed before the medical profession in accessible form a statement of our present knowledge on physiology of the endocrine glands and internal secretions. Schäfer's monograph on this subject was reviewed in the issue of the JOURNAL for June 3, 1915 (vol. elxxii, p. 830). Falta's elaborate work in German, dedicated to the great masters His, von Müller and von Noorden, presents similarly the pathology, clinical aspects

and therapeusis of the ductless glands. It is based chiefly on observations made at the first medical clinic in Vienna. The present excellent translation by Meyers makes this important work for the first time available to English speaking physicians who have not a reading acquaintance with German. The translator has also added at the conclusion of nearly every chapter a valuable editorial comment, based on his personal reading and experience, in which he aims to present the views of other investigators and clinicians when they differ from those of Falta, and to summarize and coördinate all the data upon each aspect of the subject. The translation is on the whole flexible and idiomatic. The foreword by Garrod sketches the history of the study of the ductless glands from the time of Addison, who may be regarded as its founder. It also emphasizes the contributions of Claude and Gougerot on the subject of pluriglandular sclerosis. The text is presented in fourteen chapters, dealing respectively with general considerations, diseases of the thyroid, cretinic degeneration, diseases of the parathyroids, thymus, hypophysis, epiphysis, suprarenals, status lymphaticus and hypoplasia, diseases of the sex glands, pluriglandular diseases, vegetative disturbances, diseases of the insular apparatus of the pancreas and the different forms of obesity and adipositas dolorosa. The book is abundantly and admirably illustrated with 101 figures; and, besides the references given at the close of each chapter, has an elaborate classified alphabetic bibliography of over fifteen hundred titles arranged in fourteen chapters. This volume, which should prove of the greatest interest and value to practitioners and students, is a monument of scholarship and clinical research.

The Individual Delinquent. A Text-book of Diagnosis and Prognosis for all Concerned in Understanding Offenders. By WILLIAM HEALY, M.D., A.B., Director of the Psychopathic Institute, Juvenile Court, Chicago, pp. xvi—830. Boston: Little, Brown and Company. 1915.

Many books have been written upon delinquency and the delinquent, but this, so far as we are aware, is the first that has given special emphasis to the individuality of the offender. Herein lies the chief merit of this really monumental piece of work, that delinquency is studied, not as a single type of moral or physical disorder, but rather as a condition which varies with each individual. Dr. Healy has applied to his study the case system, of which much has been heard since its original introduction at the Harvard Law School and later at the Harvard Medical School. By this method one gets forth-

with at actual facts in individual lives; this plan has been adopted by Healy with the result that he has produced a book of extreme practical value, embodying facts and not mere theories.

As a pioneer worker and in fact organizer of the juvenile psychopathic institute in Chicago, Dr. Healy has had a peculiar opportunity to apply his principles of research in a vastly important and much neglected field. He has proceeded in a purely objective way and his deductions are tentative, in view of the relatively few intensively studied cases. The subject matter of the book is divided into twenty-seven chapters under two general headings: (I) General Data, and (II) Cases, Types, Causative Factors. In the first section, which he calls Book I, after an introduction presenting the general plan of the research and certain general principles with which broad minded persons must be in substantial agreement, chapters are devoted to Orientations, the Individual, the Mental Bases of Delinquency, three chapters on Working Methods, one on Statistics and two on General Treatment. In this portion of the volume methods, which have multiplied to a somewhat alarming extent of late years, are given in considerable detail, with estimates of the value of various tests. The method of case taking is described in detail and naturally forms an important part of the book from an educational standpoint, since upon a carefully taken history and its proper interpretation must depend the ultimate determination of the case. It is gratifying to those who believe that the psycho-analytic method has been a step in advance, rather than a retrograde movement, to find a very fair statement of the present and possible future value of this means of psychological research. In general, this section of the book will be read with eagerness by students of the subject and teachers, but with a certain regret that it could not have been somewhat more condensed.

The second part of the volume (Book II), comprising about 600 pages, is concerned with the histories of characteristic cases. This portion of the book is altogether excellent and must be read to be fully appreciated. As suggested above, it affords an application of the case method worthy of imitation by all who are desirous of studying social problems by other than the usual rule of thumb method. A valuable appendix to the book is an extensive bibliography on the general subject of delinquency.

Originality is sufficiently unusual in any walk of life, and particularly in the making of books. Dr. Healy, however, has achieved a distinctly new departure in presenting an old and much discussed subject from a wholly new and suggestive point of view. That this book will be a pioneer and the forerunner of others with similar intent, is not to be doubted. The author makes no claim to finality, and simply blazes the trail for others to follow. It is certainly one of the most significant books of the last decade.

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SIR JAMES. McGREGOR, BART.,
M.D., K.C.B., F.R.S.

Of the eminent surgeons who have served at the head of the British Army Medical Corps few have been more distinguished or have had the fortune to have their activities fall in a more brilliant or critical historic epoch than the Scotsmen Sir James McGrigor, who was to Wellington what Larrey was to Napoleon in the great wars of a century ago. Centering as his long career did, about the battle of Waterloo, McGrigor's life is particularly recalled by the recent centennial of that momentous event and has been sketched at length in the *British Medical Journal* of July 25, 1914 and June 12, 1915.

James McGrigor was a highlander, born at Le-thendre in Strathspey, Invernesshire, in 1771, the son of a merchant. He was educated at the grammar school in Aberdeen and at Marischal College, from which he received the degree of M.A. Not wishing to follow his father's occupation he was attracted to the study of medicine,

partly through some of his companions, partly through visits to the Royal Infirmary. He studied medicine for three years at Aberdeen and subsequently at Edinburgh and Glasgow, though he did not at that time obtain his degree. In 1793 he became a surgeon in the 88th regiment of Connaught Rangers which, in 1794, was sent to Jersey, an island then occupied by French exiles. In the unhygienic conditions to which they were subjected typhus broke out among the members of his regiment and Mc-Grigor himself survived the disease. Later his regiment was ordered to Flanders, where he took part in the sieges of Bergen-op-Zoom and Nimuegen. Here again typhus was extensively prevalent in the army, and McGrigor acquired such a valuable clinical experience with this disease that later, when it broke out in the concentration camps at Norwich, McGrigor was detailed to eradicate it, an accomplishment which he actually achieved largely by means of fresh air and cleanliness.

McGrigor was next sent with his regiment to the West Indies aboard the frigate *Betsy*, and on arriving at Granada found himself in the midst of an epidemic of dysentery and yellow fever. McGrigor survived both these infections and directed the activities of the medical staff during the subjugation of that island. In 1796 he returned to England, but in 1798 was ordered with his regiment to Bombay and thence to Ceylon. Here he became chief of the medical staff of Bombay and formed the acquaintance of Colonel Wellesley, with whom his associations thenceforth became most intimate and confidential. In 1801 he went as surgeon with an expedition commanded by Sir David Baird to Corseia and, crossing the desert, went down the Nile to Rosetta. On the voyage to Egypt many of the troops aboard were infected with the Guinea worm, and of his experience with this parasite McGrigor subsequently wrote as follows in his autobiography:

"The disease is a very extraordinary one, and was new to me when I first met with it, although I was very well stocked with books, having had, I have reason to believe, a larger stock than most surgeons when we went to India. I looked in vain for an account of this loathsome and painful disease; I found mention merely of its name and antiquity, and that the only treatment was to pull it out daily."

At Rosetta, McGrigor assumed the medical superintendence of the army from India. While he was stationed with headquarters at Alexan-

dria the plague broke out in that city but was quickly subdued by McGrigor's efficient activities. On his return to Bombay he was appointed superintendent of local quarantine.

In 1804 McGrigor returned with his regiment to England and there left it after eleven years' service. He now received the degree of M.B. from Marischal College, but instead of settling in private practice immediately became surgeon of the Horse Guards Blue, then stationed at Canterbury. In this position he soon had to face an epidemic of hospital gangrene, which he controlled by removing his patients to new and scrupulously cleanly quarters. Later, at Windsor, McGrigor came under the favorable notice of George III and, happening at this time to have whooping cough, he had the honor to be cared for by the Queen herself. In 1805 he was gazetted deputy inspector, a position which, from its statistical functions, greatly appealed to his methodical Scottish temperament. In this office he instituted important reforms in the recording and preservation of army medical statistics. He writes as follows in his autobiography of the differences between the methods of his predecessors and the new system which he sought to introduce. He was perhaps one of the first to recognize the immense scientific possibilities and value of the medical statistics derivable from a large body of men under disciplinary control and supervision as in an army.

"The most minute and scrupulous attention was not only exacted in the number of ounces of soap, salt, oatmeal, etc., given to each patient, but an error even in the fractional parts brought down the animadversion of the board, and was frequently the subject of protracted correspondence: while no notice was taken of any new or extraordinary feature of prevailing diseases, no proposition for the trial of new remedies and for the return of reports thereon, nor any injunctions issued to notice post-mortem appearances. In short, nothing with regard to professional duty in the interests of science was noticed, unless there happened to be an extraordinary mortality in a corps. About this time, and for some time afterwards, the duties of regimental surgeon and assistant-surgeon were chiefly those of clerks, as accountants to the public for their expenditure on each sick man."

McGrigor was assigned to the northern district with headquarters at Beverly, and there undertook an extensive reform, not only of statistics but of the administration of military hospitals. He writes with a tone of genuine modern enlightenment on the importance and

function of such hospitals in the organization of an efficient army:—

"It is not only in the sense of humanity, but in that of a sound policy and real economy, that the state should provide able medical and surgical advice for the soldier when sick or wounded: I look upon it to be an implied part of the compact of citizens with the state, that, whoever enters the service of his country as a soldier to fight its battles, should be provided with the same quality of medical aid, when sick or wounded, which he enjoyed as a citizen. In every large town, whence the great bulk of recruits is drawn, there are public hospitals and dispensaries which, supported by the subscriptions of the rich, are always open to the sick and poor, and to persons of the middle classes; in fact, to those ranks in life from which the soldier comes. The physicians and surgeons of these public institutions are always the ablest men in the profession of medicine. After the enjoyment of such medical aid, the soldier should not, therefore, be consigned to the ignorant and uneducated of the profession; he is clearly entitled to the same quality of medical advice as when he was a citizen, and is not to be put off with a cheap article of a doctor, and with one who could not afford the expense of a regular medical education."

Later McGrigor was transferred to the southwest district, with headquarters at Portsmouth, where he received and dealt with the large numbers of sick and wounded after the battle of Corunna. Typhus again broke out among these troops, but was quickly suppressed by McGrigor through the use of floating hospitals which relieved the congestion of the wards on land.

In 1811 Dr. McGrigor was ordered to Walcheren to succeed Sir John Webb as chief of the medical department there. He was, however, shipwrecked on his way to Flushing, and, returning to England, was sent, in 1812, to Lisbon, to act as chief of the medical staff under Lord Wellington. It was in this Peninsular War that McGrigor now first gained national distinction, as an efficient medical administrator under circumstances of trying difficulty. His professional and administrative genius were particularly tried after the battle of Salamanca and the siege of Badajoz. Indeed, McGrigor was present in every battle in that war, including the last engagement at Toulouse. Napier in his "Peninsular War" bears striking testimony to the efficiency of McGrigor's medical administration.

"During the ten months from the siege of Burgos to the battle of Vittoria the total number of sick and wounded which passed through the hospitals was 95,348. By the unremitting attention of Sir James McGrigor and the med-

ical staff under his orders, the army took the field preparatory to the battle with a sick list under five thousand. For twenty successive days it marched towards the enemy, and, in less than one month after it had defeated him, mustered, within thirty men, as strong as before; and this, too, without reinforcements from England, the ranks having been recruited by convalescents."

Upon their return to London at the close of the war the friendship between McGrigor and Wellington continued, and as a result of the latter's influence as well as of his own distinguished services McGrigor was knighted and retired on an allowance of £3 a day. The brief period of leisure thus afforded to him McGrigor devoted to attending lectures on anatomy and chemistry.

The return of Napoleon from Elba, however, soon called England again into the field, and McGrigor was summoned from retirement, and on June 13, 1815, appointed director-general of the medical department with the relative rank of major-general. He was present at the battle of Waterloo and directed the medical relief of the allied armies thereafter. Even with the defeat of Napoleon, McGrigor was not permitted again to pass into retirement; for so active and salutary were the reforms and improvements which he instituted in the army medical service that he was retained in his position until 1851. He was held in the highest esteem, not only by Lord Wellington, but by the government, the King, his colleagues, subordinates and patients. In 1831 he was created a baronet and in 1850 was made a K.C.B. He was a Fellow of the Royal Society of London and was three times elected rector of Marischal College, Aberdeen. During these years he continued his valuable services to the British Army Medical Corps.

"Allusion has already been made to his investigation into the professional equipment of all the medical officers in the army; but no less important was his statistical research into the health and condition of the troops at all the home and colonial stations, the diseases prevalent, and the modes of treatment pursued. Through the reports and returns which he thus received half-yearly from all over the world he collected a mass of materials of the greatest value, bearing upon the health of the army. He found out the average duration of the life of the soldier in different climates, the causes of their diseases, the mortality in various years from cholera, yellow fever, and other maladies, and the effects of new sanitary methods both of prevention and of cure. His name will also ever be honorably associated with the Army Medical

Friendly Society for the relief of widows of army medical officers, which he started in 1816, and with the Army Medical Benevolent Society for the benefit of the orphans of medical officers, which he established four years later. He formed, too, at Chatham a Museum of Anatomy and Natural History bearing upon military surgery and the library attached thereto, to which he contributed no fewer than 1500 volumes."

McGrigor himself was not a voluminous writer, but his medical sketches, memoirs, letters and autobiography are models of concise, yet picturesque, vigor and accuracy in style.

For fifty-seven years Sir James McGrigor devoted his energy and genius to the medical service of his country, a service during which he had had not only the hardships of his profession, but had passed as many battles, dangers and shipwrecks as Othello; yet after this "life of sturt and strife" he survived to enjoy six years of peaceful retirement in London, where he finally died on April 2, 1858 "without pain and almost without disease." In his personality he combined the best qualities of the doctor and the soldier.

"In addition to his great ability as an administrator, McGrigor had the qualities of character that command success. Ever straightforward in his dealings, he combined tact and courtesy with firmness in a most unusual degree. From the time of his joining the Connaught Rangers to the very end of his career he was recognized as an officer who could be trusted to do his duty at whatever cost to himself. The confidence of the soldiers in him reminds one of the story of Ambroise Paré's reception by the garrison of Metz, 'Our Ambroise is with us; we shall not die.' From first to last he was on the best of terms with the officers of his own department, and also with those of the combatant branches. It must never be forgotten that he placed foremost in his desires the health of the soldier; that he worked hard to raise the professional and educational status of the army medical officer; and that he showed a true devotion to the scientific aspects of medicine which was admirable in a life so full of departmental worries and absorbing preoccupations."

EXACT METHODS IN PSYCHIATRY.

A difficulty in the psychiatric field has been the failure of exact methods of determining the significance of mental states. The coldness which has been manifested toward this branch of medicine by practitioners of scientific bent has been due largely to the fact of the general indefiniteness of the subject. Laboratory methods have

been difficult of application and hence in the present phase of medical opinion the whole subject has been regarded as rather outside the pale of orthodox scientific investigation. It is, however, evident that a change is coming in this attitude and that methods, psychological and of other sorts, are being applied with hope of definite and exact results. All that has grown out of the Binet methods for example, is a step in this direction, not to speak of the more disputed analytical methods of investigating mental phenomena which still are on trial. A still further step toward the desired end of exactitude is illustrated by the work which Dr. G. Philip Grabfield has been doing for the past year at the Boston Psychopathic Hospital in connection with the sensory threshold for faradic stimulation in psychopathic subjects. A further communication on this general subject is printed in this issue of the JOURNAL. Although the number of cases as yet studied is too few upon which to base a broad generalization, it can hardly be doubted that considerable significance is to be attached to this graphic method of determining emotional states. Grabfield in general finds that in the psychosis now known as manie-depressive insanity, during the manic phase a normal threshold for faradic stimulation is maintained, whereas in the depressed stage there is almost invariably a pathologically high threshold. If it be finally proved that a high threshold or diminished sensitivity is characteristic of depression as observed in that psychosis, it becomes evident that a somewhat valuable means of diagnosis of an exact nature is at hand. This possibility Grabfield believes to be a fact. He states in one place, "that the differentiation of true depressions of this psychosis (manic depressive) from those of the psychoneurotic group will be made vastly easier by the determination of this threshold is definitely indicated by the evidence which is at present available." Whatever the ultimate significance of this work on faradic stimulation may prove to be, it is certainly a step in the direction of applying scientific methods to the abstruse problems of the mind and as such constitutes a further bond of association between the field of so-called internal medicine and of its closely related subject, psychiatry. If psychiatry is to come into its own, it apparently must ultimately embrace in its field all the branches of medicine from which it now too often appears to be sharply separated. Work such as this of Dr. Grabfield tends to bring this day nearer.

SPECTACLED SOLDIERS.

A question which is now engaging the attention of recruiting officers across the sea is the advisability of allowing men who wear glasses to enlist in the army. Should the United States become involved in this or any other war this problem would be presented to our army and more particularly to the army medical officers. It might indeed assume grave proportions with us on account of the prevalence of visual defects among Americans.

An argument against enlisting such men, which will at once occur to military surgeons and to other physicians who have attended men in prisons or other places where there was a temptation to avoid duties of various kinds, is the ease with which men with glasses may avoid active duty, if they are so inclined, by simply breaking or losing their glasses. Then of course these accidents may actually happen and deprive the army of the recruit's services for a period if the visual defect be of such a degree as to incapacitate him.

Another factor which must be taken into consideration is the severe character of wounds of the orbit in soldiers wearing glasses. This peculiar susceptibility of spectacled men is recognized by the laws of most communities which provide for a harsher penalty for one committing an assault on a man with glasses than on one without. It is also considered hazardous for such a man to play professional baseball, so much so that we find in the two major leagues, employing between three and four hundred players, only one man with glasses and he is regarded as something of a curiosity, being the only one of the sort for a number of years. A projectile striking a pair of spectacles with considerable force would drive the splintered fragments of glass directly into the brain, inflicting an almost necessarily fatal wound. This is not pure hypothesis, for since the present war began we have received frequent reports of severe injuries sustained by officers wearing wrist watches which came into contact with flying pieces of shell or bullets. Even those in the immediate vicinity of soldiers wearing glasses might be endangered by the fragments of glass, just as is the case now with wrist watches.

Of course there will be some applicants for enlistment who will be desirable on account of special knowledge or because they have had experience which fits them for certain depart-

ments of the army, even though they are handicapped by some visual defect. Then, too, the exigencies of the situation may become such that disabilities of this kind will have to be waived.

The whole matter will, of course, be decided by the military authorities, but it seems that the opinion of the medical profession, which will undoubtedly be asked, will be against the enlistment of men with glasses on account of the ease with which they may malinger, their liability to become incapacitated by accident to their glasses and the peculiarly severe nature of the wounds which they may sustain.

A YEAR OF THE EUROPEAN WAR.

THE first year of the great European War has come to an end. Already this war has lasted considerably longer than was generally prognosticated at its outbreak; and the prospect of its early termination seems perhaps more remote now than at any time since the beginning of hostilities. From time to time fresh nations have joined the belligerent powers, and it is not certain that still others may not become involved. A year ago today the assault upon Liège was in progress, and on August 7 that city was occupied by the hostile forces. The events which have succeeded during the ensuing year have marked an unprecedented epoch in the world's history, and have been characterized by an intensity of dramatic interest which has appealed to every class and to all races. Biologically, politically and sociologically, as well as in its medical and human aspects, the European War remains for physicians, as for men of every other walk in life, the great outstanding phenomenon of the twentieth century.

During the past year the JOURNAL has endeavored to present to its readers chiefly such aspects of the great conflict as have a professional and scientific interest. Through its special correspondents it has fortunately been able from time to time to record at first hand the experiences of physicians, not only in the various belligerent countries, but in hospitals, ambulance corps, and at the several arenas of the war. It has already been able to publish several original articles based on the actual experience of war surgery and expects to be able to publish more, as time proceeds. The JOURNAL will soon have the especial privilege of printing a valuable series of extracts from personal letters of Dr.

Richard P. Strong, dealing with his experience in the suppression of the typhus fever epidemic in Serbia, one of the most noteworthy achievements to the credit of the American medical profession during the war.

As the European War continues, its interest and importance increase rather than diminish; for not only are its events of a stupendous and colossal magnitude, but its settlement is fraught with momentous consequences which will profoundly affect the future aspect of civilization throughout the world. As a scientific periodical, the JOURNAL has remained and will continue dispassionately neutral in its view of the phenomena of the war, and until the conclusion of the conflict will endeavor to present in due proportion in its columns those events which have a particularly medical bearing. In the present issue, grouped for the first time under a special heading, are several topics of particular concern: the withdrawal of American Red Cross aid, the establishment of an American relief hospital at Florence, the award of a decoration for heroism to an American physician. To the physician, perhaps more than to men of any other profession, nothing human is alien; and not only does our profession play a large and critical part in the actual events of war, but it is likely to have an even more prominent rôle in the racial reconstruction which must follow.

MEDICAL NOTES.

NEW YORK BABIES DO WELL DESPITE THE HEAT.—According to figures compiled by Registrar W. H. Guilfoy, of the Department of Health, there were 1299 deaths reported during the past week, with a rate of 11.67 per thousand of the population, as compared with 1331 deaths and a rate of 12.44 during the corresponding week of 1914, a decrease in the absolute number of deaths of 32, and a decrease in the rate of 0.77 of a point, which is equivalent to a relative decrease of 86 deaths.

The mortality from diarrheal diseases under five years of age, notwithstanding the extremely hot weather of the week ending July 17, 1914 (diarrheal death rate ordinarily increases after the third day of extremely hot weather), showed the decreased mortality of approximately 8%.

The number of deaths from heat stroke was nine, one more than the number in 1914.

Tuberculosis and accidental deaths were the only other causes that showed an increased mortality.

The mortality from typhoid fever was 60% lower than in 1914.

The Borough of the Bronx showed the extremely low rate of 7.83 per 1000 from all causes.

The death-rate from the first of January, up to and including Saturday, July 24, was 13.86 per 1000 of the population, as compared with a rate of 14.37 during the corresponding period of 1914.

BOOK AGENT CLAIMS TO BE HEALTH DEPARTMENT NURSE.—Commissioner Goldwater lately sent out a warning to New Yorkers to be on the lookout for a wily woman book agent who secures her introduction into homes where there is a case of contagious disease by representing herself to be from the Department of Health. In an instance reported in Brooklyn, the mother of a child ill with measles was visited by a woman who said she came from the Board of Health and had received word of the case and that she had called to tell how to treat such cases. Under the belief that this woman was from the Health Department and that the publication she represented was sanctioned by it, the mother was induced to sign her name to a blank and pay one dollar down. After a while, she began to realize that she was buying a book on health and longevity, which was to be paid for twenty-five cents a week for many months, and thereupon demanded her money back, which was refused, the woman departing saying that the book would be sent the following Monday. The receipt she left tells of a book on health through which people are taught how to get along without doctors, by treating their own families according to the prescriptions therein. The book is to cost twelve dollars, and there is no address on the blank.

Almost needless to say, the Department of Health is not promoting the sale of any particular book on health. On the contrary, it is glad to send, free of charge to all who ask, carefully written circulars of information regarding almost all matters of public health, including, of course, special leaflets on the various contagious diseases.

HONAN BIOLOGICAL INSTITUTE.—It is announced in a recent issue of the *British Medical Journal* that the new building of the Honan Biological Institute at Queens College, Cork, Ireland, has recently been completed with funds provided by the trustees of the estate of the donor.

"In the new building ample room has been provided for the study of zoölogy, botany and geology. There are junior and senior zoölogical and botanical laboratories, as well as research rooms, geological and geographical laboratories, and a large semicircular lecture theater, lighted from the roof, and capable of accommodating about 100 students."

UNIVERSITY OF CINCINNATI MEDICAL COLLEGE.—It is announced in a recent issue of *Science* that during the past month the Medical College of the University of Cincinnati has received several large gifts.

"Mrs. Mary M. Emery promised the university the sum of \$250,000 for a new Medical College building, on the condition that an additional \$250,000 be raised by July 1 for its equipment and maintenance. At the appointed time, Dean C. R. Holmes, of the College of Medicine, announced that \$250,000 had been secured. The new structure will be located on grounds adjacent to those of the Cincinnati General Hospital, which occupies 24 buildings and covers 27 acres, and which offers unusual opportunities for clinical instruction. The sum of \$30,000 has just been raised by citizens of Cincinnati for the purpose of maintaining for three years a chair of medicine in the Medical College. The chair will be known as the Frederick Forchheimer chair of medicine, in honor of the late Dr. Frederick Forchheimer, who was for years professor of medicine at the Medical College. Dr. Robert S. Morris lately of Clifton Springs, New York, and formerly of Ann Arbor and of Johns Hopkins University, has been appointed to the new position."

THE DEVELOPMENT OF TROPICAL COUNTRIES.—In an address delivered in Cincinnati, General William C. Gorgas made the following pertinent remarks regarding the effect of improved sanitation in tropical countries on their industrial development:—

"The real scope of tropical sanitation which has been almost entirely developed within the last fifteen or twenty years, I believe, will extend far beyond our work at Panama. Everywhere in the tropics, to which the United States has gone in the past fifteen years, it has been shown that the white man can live and exist in good health. This has occurred in the Philippines, in Cuba and in Panama, but the demonstration has been most prominent and spectacular at Panama, and therefore has attracted there the greatest world-wide attention. Here among our large force of laborers we had for ten years some ten thousand Americans, men, women and children. Most of these American men did hard manual labor, exposed to the sun, rain and weather conditions day in and day out, yet during that time their health remained perfectly good, just as good as if they were working at home. The same remark as to health would apply to the four thousand women and children who lived at Panama with their husbands and fathers. Both the women and children remained in as good condition as they would have been had they lived in the United States. This condition at Panama, I think, will be generally received as a demonstration that the white man can live and thrive in the tropics. The amount of wealth which can be produced in the tropics for a given amount of labor

is so much larger than that which can be produced in the temperate zone by the same amount of labor that the attraction for the white man to emigrate to the tropics will be very great, when it is appreciated that he can be made safe as to his health conditions at a small expense. When the great valleys of the Amazon and of the Congo are occupied by a white population more food will be produced in these regions than is now produced in all the rest of the inhabited world."

EUROPEAN WAR NOTES.

TYPHUS IN SERBIA UNDER CONTROL.—On July 22 it was reported by the American Vice Consul at Belgrade that the epidemic of typhus fever at Serbia and Montenegro is now under complete control. It is added that the cost of continuing the control of pestilential diseases in Serbia during the next two months is estimated at \$10,000.

WITHDRAWAL OF RED CROSS FROM EUROPE.—Report from Washington, D. C., on July 25 announces that on October 1 the American Red Cross will withdraw 14 of its units from the various belligerent countries, leaving only the two units in Belgium, where it is believed that the need for them is greatest. This withdrawal is made necessary by lack of sufficient funds to maintain the units at their present stations. The Serbian sanitary commission, however, whose support has been provided for by special contribution, will continue its work. A statement has recently been issued by Miss Mabel T. Boardman, chairman of the American Red Cross Relief Committee, showing the exact amount and kind of relief sent to the various countries:—

"The Red Cross sent to the warring countries 367 persons engaged in humanitarian enterprises. Of that number 71 were surgeons and 253 nurses, while 43 were members of the Serbian sanitary commission. England, France, Russia, Germany, Austro-Hungary, Serbia and Belgium each received one or more units, which means one or more complete hospitals, with doctors, nurses and other attendants, and with all necessary supplies and equipment. The administrative expenses of the huge undertaking have already amounted to \$11,291, and this has been paid by the Red Cross itself and not taken from the fund contributed for relief.

"The report shows that the Red Cross has sent into the war zone almost 1,000,000 pounds of cotton for the hospitals, 882,000 yards of surgical gauze, 65,000 yards of crinoline, 727,000 assorted bandages, 33,000 yards of adhesive plaster, 9240 stretchers, 10,267 blankets, and other supplies in proportion and 19 motor ambulances for the Red Cross personnel. There were also four army field hospital outfits, 50 army hospital tents and 30 field medical tents.

"Following is a summary of services rendered each belligerent government—

"Austria, 11 shipments, value \$97,683; Belgium, 12 shipments, \$96,708; England, 13 shipments, \$87,843; France, 24 shipments, \$216,155; Germany, eight shipments, value \$182,795; Italy, two shipments, \$14,451; Montenegro, three shipments, \$15,326; Poland, one shipment, \$7200; Russia, nine shipments, \$89,613; Serbia, eight shipments, \$130,867; Turkey, two shipments, \$12,536.

"The financial statement shows expenditures of \$1,450,306, leaving a balance of \$174,818 on hand, for which the demands already are heavy."

ORGANIZATION OF AMERICAN COMMITTEE FOR RELIEF WORK FOR ITALIAN WOUNDED.—The following announcement has been made relative to the organization of an American committee for war relief in Florence:—

"Upon the intervention of Italy in the European War, a meeting of Americans resident in Florence was convened to institute and organize relief work for the Italian wounded. At this meeting it was unanimously resolved to equip and maintain a hospital for convalescent private soldiers discharged from the military hospitals, but not yet able either to rejoin the colors or to return to their homes. To this end a general committee was appointed, with the title American Committee for War Relief in Florence.

"Upon application to the authorities of the Italian Red Cross the committee was most courteously offered the use of the commodious and historic Villa del Sole di Camerata, previously placed at the disposal of the Red Cross by its owner, Cav. Dott. E. Modigliani. With ample capacity for one hundred hospital beds, surrounded by a spacious park and garden, and furnished with modern appliances for heating, lighting and sanitation, the Villa Modigliani is admirably adapted for our purpose. Properly equipped and maintained as a hospital, it will be an offering to the Italian people, in the hour of stress, worthy of the sincere and grateful friendship borne them by Americans who have loved their country and its past, and look with confidence toward its future. All expenses of equipment and maintenance will be met and financed by the American committee.

"The medical staff will be appointed by the Italian Red Cross, with the co-operation of the American committee, which will further charge itself with such functions as may be delegated to it by the medical authority.

"The resources of the American colony in Florence are insufficient for the maintenance of the hospital upon a scale commensurate with the opportunity and the need. Its members hope, therefore, to enlist the interest and financial co-operation of their fellow-countrymen who have known something of the beauty and inspiration of a city which has contributed so generously to the ideal life of our civilization.

"The initial expense of equipment for one hundred beds is estimated at four thousand dol-

lars; the monthly expense of maintenance at the same sum. The cost of this hospital for one year, upon this basis, will, therefore, be not less than fifty thousand dollars. Toward this sum more than twenty thousand dollars have been pledged, by Americans resident in Florence, chiefly in monthly subscriptions.

"The committee looks confidently to the larger American public for their sympathy and co-operation. It is hoped that a sum will be subscribed sufficient to enable the hospital to receive and care for as many patients as the space at our disposal may warrant.

"Checks should be drawn and sent with the detachable form, duly filled in, to H. Blakiston Wilkins, Treasurer, 4 Via Bernardo Rucellai, Florence. American checks may be sent to H. Blakiston Wilkins, treasurer, care of Bankers Trust Company, Wall Street, New York."

SECOND HARVARD SURGICAL UNIT.—Report from Europe on July 28 states that the second Harvard Surgical Unit, which sailed from New York City on June 26, is now at service in charge of a British base hospital of 1000 beds in France, the exact location being deleted by the censor. The unit is under official chief command of Lieutenant-Colonel Sir Allan Perry, R.N.M.C. Dr. E. H. Nichols, the surgeon-in-chief of the unit will return to the United States about September 1. On Saturday, July 31, there sailed from New York aboard the steamship *Philadelphia* for England, whence they will proceed to France, Dr. Edward P. Richardson, Dr. Channing C. Simmons and Dr. Donald B. Sternburg of the Massachusetts General Hospital. It is expected that this party will arrive in France about August 10.

TYPHUS FEVER IN EUROPE.—The weekly report of the United States Public Health Service for July 23, 1915, notes that during the fortnight ended June 5, twenty-three cases of typhus fever in the military service were reported in Germany. During the same period the disease was reported present among prisoners of war in Baden, Saxe-Coburg-Gotha and in seventeen German government districts. During the week ended June 10, twenty-three cases and seven deaths of the disease were reported in Alexandria, Egypt. During the fortnight ended May 8, 645 cases were reported in Austria, chiefly among soldiers of war and persons from Galicia.

FRENCH GOVERNMENT HONORS CAMBRIDGE PHYSICIAN.—It is announced that Dr. Richard Norton, of Cambridge, Mass., has been awarded the decoration of the "croix de guerre" by the French government for great gallantry in rescuing a number of wounded during the evacuation of a village within 600 yards of the hostile lines and under heavy fire, in which he "avec un sangfroid et un phlegme de merveilleux a eu ses,

voitures percés de projectiles." Dr. Norton has been serving since August, 1914, in command of a British corps of 80 motor ambulances in Flanders.

WAR RELIEF FUNDS.—On Aug. 1 the totals of the three principal New England relief funds for the European War reached the following amounts:—

Belgian Fund	\$266,442.37
Red Cross Fund	137,647.75
Serbian Fund	35,845.55

BOSTON AND NEW ENGLAND.

GIFT TO HARVARD FOR MEDICAL RESEARCH.—It is announced that Mr. Douglas Flattery of Boston has presented to the president and fellows of Harvard College a fund of which the annual income will be about \$800 for the encouragement of scientific study of the cause, cure and prevention of disease. The terms in which this gift is made are as follows:

"I am prompted to this gift by the belief that much knowledge of those diseases of which the cause and treatment are at present wholly or in part unknown will be acquired in the future through the persistent study of those diseases by skilful and industrious workers, who may be able to devote their whole time for a given period to such study. It is my hope that the income of this fund will enable and encourage both young men of marked promise and investigators of brilliant achievement to pursue those scientific studies in the fields of medical or surgical research for which they are highly qualified, or show special adaptability.

"The income is annually to be assigned by vote of the president and fellows of Harvard College, unless in their wisdom and unrestricted authority the purpose of this gift could best be served by withholding the income for any year or any term of years, but I would prefer an annual appointment, for not more than three years.

"In expressing my hope for the disposition of the income of this fund, I do not wish to impose any restrictions upon the authority of the president and fellows of Harvard College other than that the income be for all time devoted to the promotion of the scientific study of the cause, the cure and the prevention of disease.

"If, in your judgment, the amount is insufficient to get the results desired I am willing to consider the advisability of increasing the capital now or in the future."

NEW PLYMOUTH HOSPITAL.—The new building of the Plymouth (Mass.) Hospital was dedicated on Thursday of last week, July 22. The money for this building and a sum for its endowment were given by Mrs. Rosa Cole of Kingston, Mass. The cost of the building was \$100,000. There is a general surgical and a medical ward, an isolation ward, boiler room and laundry. The old

building is now used for administration and the two are connected by a passageway. The new building is equipped with silent electric signals, electric elevators and a German system of indirect lighting.

MASSACHUSETTS DEPARTMENT OF HYGIENE.—In the issue of the JOURNAL for June 3d we noted the appointment of Professor Selskar M. Gunn as chief of the newly-established division of hygiene of the Massachusetts Department of Health. This division has recently issued a statement regarding measles, for distribution over the state, calling attention to its dangers, prevalence and the necessity of careful nursing during the course of the disease. Professor Gunn states that about five hundred babies die each year in this state from measles, and a large number of other deaths, charged to bronchial pneumonia, are primarily due to measles. In January there were 1118 cases. The number steadily increased until the returns for the month of May showed 4809 cases. Practically all the fatal cases of measles in this state are children under six years of age. The division has in preparation the publication of a book on the baby for mothers and a traveling exhibit on child welfare. Films showing educational pictures about such topics as the milk supply and typhoid fever will be furnished various moving picture theatres. Educatve work in co-operation with the American Society for the Control of Cancer is also being prepared.

CARE OF HOSPITAL RECORDS.—The Massachusetts General Hospital has published in the form of a pamphlet a complete statement of its system of caring for hospital records. It describes minutely the exact routine followed,—the admission of a patient, the writing of the record, directions for work on records, duties of the custodian, daily inspection of charts, weekly inspection of records, name and result catalogue, follow-up work, the clinical catalogue and the ultimate binding of the record. For the purpose of standardizing the methods of keeping hospital records this statement will be valuable.

COST OF THE EPIZOOTIC OF FOOT AND MOUTH DISEASE.—It is announced by the Massachusetts Bureau of Animal Industry that no case of foot and mouth disease has been reported in this state since April 17. Forty-nine cities and towns and ninety-seven farms were involved in the epizootic of this disease last winter as a result of which there were slaughtered 6116 infected swine, 2114 cattle, 1697 fowl, 77 sheep and 11 goats. The value of these animals was appraised at \$230,994.38 for which the owners are reimbursed by the state and nation, each of which meets one-half of the expense. The total cost met by the Commonwealth of Massachusetts, therefore, amounts to \$115,472.19. The majority of these payments have already been made.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.—A quarterly meeting of the Massachusetts Association of Boards of Health was held at the Pemberton Inn, Hull, on Thursday afternoon of last week, July 29. Dr. Elliot Washburn, superintendent of the Rutland Sanatorium, read a paper by the late Chester Bryant, an agent of the Haverhill Board of Health, on "The Incorrigible Consumptive." The second paper of the afternoon was by Dr. Francis G. Curtis, chairman of the Newton Board of Health, on "Some Inconsistencies in Dealing with Tuberculosis."

THE DENTISTS' DILEMMA.—In the issue of the JOURNAL for July 22, we noted the complication arising as a result of the enactment of the new dental registration law in this Commonwealth. As a result another meeting of the registration board was held on July 27, at which the additional examination required was taken by one hundred, of the two hundred and one candidates previously rejected. Of these, ninety-three were passed.

Massachusetts Medical Society.

FRANKLIN AND HAMPSHIRE DISTRICT SOCIETIES.—Wednesday, July 14, Franklin-Hampshire District Societies had a combined meeting and outing at South Deerfield. Little Franklin's baseball men scored a 10—5 victory over Hampshire on a field at the base of beautiful Mt. Sugar Loaf. Superintendent Dr. Charles E. Perry of the County Tuberculosis Hospital at Northampton read a paper covering the field and service of such hospitals and advocating a larger hospital unit on account of the expense. The state law relating to the establishment of sanatoria in towns of 10,000 or more population appears to work a hardship in this rural section. In the discussion which followed the following participated: Dr. J. E. Urquhart of Ashfield, president of the Franklin Society; Dr. H. G. Stetson, Dr. C. C. Messer, Dr. G. P. Twitchell, Dr. N. P. Wood, Dr. Charles Moline, and Dr. P. W. Goldsbury of Franklin; Dr. C. T. Cobb of Easthampton, president of the Hampshire Society; Dr. Christopher Seymour, Dr. J. G. Hanson, Dr. F. H. Smith, Mr. Clarence Hodgkins, chairman, and Mr. Frank E. Brooks of the County Commissioners of Hampshire County. Dr. N. P. Wood of Northfield moved that a committee be appointed including the presidents of both Societies to see what could be done to the effect that the hospital for Hampshire County might serve Franklin County as well, and the motion was carried. About fifty sat down to an excellent dinner at the Warren Hotel.

P. W. GOLDSBURY, M.D.

Miscellany.

THE MILK INDUSTRY.

REPORT OF THE BOSTON CHAMBER OF COMMERCE COMMITTEES.

The medical profession will be interested in the report of the Committee of the Boston Chamber of Commerce which, as noted in these columns last July, has made an exhaustive survey of the milk industry in New England during the past year. The committee was composed of the following persons: John P. Bowditch, George H. Ellis, John C. Runkle, and Walter E. Smith, and it has had the assistance of several specialists. Sixteen hearings have been held in all the New England states, attended by 2500 farmers, representing between 70 and 80 per cent. of the milk-producing towns. These are the six recommendations made in the report:

1. The establishment of a standardized system of milk grading and labelling for all New England.
2. The establishment of country milk stations by producers in co-operation with local business men and railroads, where milk may be graded and processed and the surplus utilized in the manufacture of butter and cheese.
3. Bookkeeping by farmers for keeping accurate records of production costs and economizing farm operations. A co-operative arrangement is suggested.
4. Reform of present methods of railroad transportation, abolishing the leased car system and establishing uniform per-car rate.
5. Improvement of city distribution. Adoption of the ticket system, cost accounting methods, and the study of common problems by dealers in a co-operative organization.
6. Advertisement of the food value of milk and milk products, thus adding to the other improvements in marketing the important factor of publicity.

As regards the "ticket system" referred to in the fifth recommendation it may be said that the cost of delivery to the family might be reduced by use of the ticket system which has worked successfully in the West and in some cities of New England. The consumer pays \$1 or less for tickets, which he puts out each day in the empty bottles for the amount of milk and cream he wishes. This assures the dealer his money in advance, prevents loss by bad bills, and secures the return of bottles. This ticket system will enable the price of milk to the consumer to be raised or lowered in fractions of a cent.

A perusal of the full report by every physician will be time well spent.

Correspondence.

LOBAR PNEUMONIA.

WESTPORT, NEW YORK, July 29, 1915.

Mr. Editor: In Dr. Frederick T. Lord's article, July 29, 1915, page 154, I find the following: "In consideration of the development of pneumococci only at body temperature and their short viability outside the body, *contagion* must be regarded as the method of spread." This statement prompts me to affirm again, what I thoroughly believe, that for all patients, either imminently threatened with pneumonia, or already suffering from it, it is all important, whenever practicable, to have beechwood creasote, constantly vaporised in the sick room.

This may be readily done with the ordinary croup kettle filled with boiling water, to which a small quantity of creasote is added, as required.

Whether, or not, creasote, or creasotol, should be prescribed internally, is questionable.

In hospital wards, the reason, almost of necessity, we have increased mortality is because treatment with creasote inhalations cannot be properly carried out. In hospital private rooms, it is, of course, different. I have tried many methods of treatment in pneumonia, but have never seen any so efficacious as the one I recommend.

BEVERLEY ROBINSON, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

FOR THE WEEK ENDING JULY 24, 1915.

CONTRIBUTIONS.

Dr. Charles N. Dowd, New York.....	\$ 2500
Dr. Emil Lofgren, Rockford, Ill.....	5.00
Columbia Medical Society, Columbia, S. C.....	20.00

Receipts for the week ending July 24.....	\$ 50.00
Previously reported receipts.....	7700.84

Total receipts.....\$7750.84

Previously reported receipts:

1625 standard boxes of food @ \$2.20, .83575.00

1274 standard boxes of food @ \$2.30, .2930.20

353 standard boxes of food @ \$2.25, .804.84

Total disbursements.....\$7310.04

Balance.....\$440.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

MEDICAL BROTHERHOOD FOR THE FURTHERANCE OF INTERNATIONAL MORALITY.

In last week's issue of the JOURNAL we noted the appeal and plan of Dr. S. J. Meltzer of New York for the formation of a medical brotherhood for the furtherance of international morality. It is announced that this organization has now been effected and the following are announced as its officers:

EXECUTIVE COMMITTEE.

Residents of the City of New York.

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First Vice-President., Dr. Rufus Cole, Director, Rockefeller Hospital.

Second Vice-President., Dr. S. Josephine Baker, Director, Dept. of Child Hygiene.

First Secretary., Dr. Wm. J. Gies, Professor of Biological Chemistry, Columbia University.

Second Secretary., Dr. Harlow Brooks, Professor of Clinical Medicine.

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Dr. John Winters Braman, President, Medical Board, Bellevue Hospital.

Dr. J. A. Fordyce, Professor of Dermatology, College of Physicians and Surgeons.

Dr. Nellis B. Foster, Assistant Professor of Medicine, Cornell University Medical School.

Dr. S. S. Goldwater, Commissioner, Dept. of Health, Dr. Graham Lusk, Professor of Physiology, Cornell University, Medical School.

Dr. William H. Parke, Professor of Bacteriology, Univ. and Bell, Medical College.

Dr. John Allen Wyeth, President, New York Polyclinic.

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Dr. W. C. Gorzas, Surgeon-General of the Army, Washington, D. C.

Dr. W. S. Halsted, Professor of Surgery, Johns Hopkins Medical School, Baltimore.

Dr. W. H. Howell, Professor of Physiology, Johns Hopkins Medical School, Baltimore.

Dr. Abraham Jacobi.

Dr. W. W. Keen, President, International Surgical Congress; President, American Philosophical Society, Philadelphia.

Dr. Edward L. Trudeau, Saranac Lake, New York.

Dr. James Tyson, Professor of Medicine, Emeritus, University of Pennsylvania, Philadelphia.

Dr. Victor C. Vaughan, Professor of Hygiene and Physiological Chemistry, Ann Arbor.

Dr. William H. Welch, President, National Academy of Sciences; Professor of Pathology, Johns Hopkins Medical School, Baltimore.

HONORARY VICE-PRESIDENTS.

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Dr. Herman M. Biggs, Commissioner, State Board of Health, New York City.

Dr. Frank Billings, Dean, Rush Medical College, Chicago.

Dr. Clarence John Blake, Professor of Otology, Emeritus, Harvard Medical School, Boston.

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Dr. W. H. Carmalt, Professor of Surgery, Emeritus, Yale University Medical School, New Haven.

Dr. George Dock, Professor of Medicine, Washington University, Medical School, St. Louis.

Dr. James Ewing, Professor of Pathology, Cornell University Medical School, New York City.

Dr. Alice Hamilton, Expert on Occupational Diseases, Federal Bureau of Labor Statistics, Washington.

Dr. L. Hektoen, Professor of Pathology, Rush Medical College, Chicago.

Dr. Howard A. Kelly, Professor of Gynecology, Johns Hopkins Medical School, Baltimore.

Dr. Robert G. LeConte, President, American Surgical Association, Philadelphia.

Dr. Rudolph Matas, Professor of Surgery, Tulane University, New Orleans.

Dr. William J. Mayo, Rochester, Minnesota.

Dr. Charles K. Mills, Professor of Neurology, University of Pennsylvania, Philadelphia.

Dr. John B. Murphy, Professor of Surgery, Northwestern Medical School, Chicago.

Dr. E. L. Opie, Professor of Pathology, Dean, Washington University Medical School, St. Louis.

Dr. Charles A. Powers, Professor of Clinical Surgery, Emeritus, University of Colorado, Denver.

Dr. W. L. Rodman, President, American Medical Association, Philadelphia.

Dr. G. E. deSchweinitz, Professor of Ophthalmology, University of Pennsylvania, Philadelphia.

Dr. Henry Sewall, President, Association of American Physicians, Denver.

Dr. F. C. Shattuck, Professor of Medicine, Emeritus, Harvard Medical School, Boston.

ADVISORY COMMITTEE, 102 MEMBERS.

Medical readers of the above are requested, if they are so inclined, to enroll as members. There is no membership fee. But voluntary contributions for the purpose of upholding the organization, distribution of literature, etc., will be gratefully accepted. Enrollment and contributions are to be sent to the Medical Brotherhood in care of

S. J. MELTZER, M.D.,

13 West 121st Street,

New York City.

APPOINTMENTS.

MONTEFIORE HOME.—*Dr. Benjamin S. Klein* of the Rockefeller Institute for Medical Research has been appointed resident pathologist of the Montefiore Home for Chronic Invalids in New York.

NEW YORK POST-GRADUATE MEDICAL SCHOOL.—*Dr. Ward J. MacNeal* has been appointed director of laboratories at the New York Post-Graduate School and Hospital to succeed *Dr. Jonathan Wright* who has resigned. *Dr. Morris Fine* has been appointed adjunct professor of pathologic chemistry and *Dr. Richard M. Taylor* adjunct professor of pathology.

UNITED STATES PUBLIC HEALTH SERVICE.—*Dr. M. Sullivan* has been appointed biochemist in the United States Public Health Service to engage in the study of pellagra at the Pellagra Hospital in Spartanburg, S. C.

RECENT DEATHS.

DR. EDWARD BEDDOE who died on July 24 at Philadelphia was born in 1848. Though educated as a physician and dentist he never engaged in practice but devoted his life to the United States Consular Service, having served as consul at Verona, Italy; Alexandria and Cairo, Egypt; and Amoy, China.

DR. CHARLES HARVEY SHATTUCK who died on July 26 in Malden, Mass., was born at Quechee, Vt., in 1863. He received the degree of M.D. from Dartmouth Medical School in 1881 and practised first at Ballardvale and later at Andover, Mass. He removed to Everett, Mass., in 1902 but lately had resided at Malden. He is survived by his widow, two daughters and three sons, one of the latter a practicing dentist in Everett.

DR. CHARLES F. P. BURCHMORE, of Boston, who died on July 27 at Winthrop, Mass., was born in 1864. He received the degree of M.D. in 1893 from the Baltimore College of Physicians and Surgeons, and was a member of the Massachusetts Eclectic Medical Society. He is survived by his widow.

The Boston Medical and Surgical Journal

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Massachusetts Anti-Tuberculosis League

FIRST ANNUAL CONFERENCE, APRIL 1, 1915.

I.

THE ORIGIN AND AIMS OF THE MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE.*

BY VINCENT Y. BOWDITCH, M.D., BOSTON,
President.

At the first anniversary meeting of the Anti-Tuberculosis League of Massachusetts, it may be well to reiterate the statement made a year ago, at the last meeting of the "Massachusetts Tuberculosis Conference." The League was an outgrowth of that Conference, which in itself was originated by our Boston Association and was formed for the purpose of spreading the knowledge of the work done by it throughout our State. The purpose of the League is to bring all of the various associations and affiliations into closer touch with each other, in order that by co-operation and coördination more efficient work can be accomplished than ever before.

Massachusetts has always been in the foremost ranks of anti-tuberculosis work, and the formation of this League is, in my opinion, a marked step forward in procuring greater efficiency of effort.

It would be impossible in a short space of

time even to touch upon all the many phases of the anti-tuberculosis work, but certain important points that have impressed themselves upon my mind I wish to emphasize now. I have spoken of the necessity of coöperation among all the increasing number of anti-tuberculosis associations in the state, in whatever special form of work each one is interested. Such meetings as we have here today must have their good effect in enabling us all to learn how each community is grappling with its own special problems. I am convinced that it is important to recognize the fact that, owing to varying conditions, each locality may have its own special way of dealing with the tuberculosis problems, and what may be a good method in one, may not be so suitable for another. The main fact should be that wherever work is being done the situation should be met with vigor and determination to control the ravages of the disease. The mere establishment of an anti-tuberculosis association which lacks the elements of patient, dogged perseverance in following up the work, will amount to little or nothing. Mere "flash-in-the-pan" enthusiasm is of no avail, and proof of determined effort in one direction or another to stamp out, or at least control the disease wherever it arises should be insisted upon, as a *sine qua non* of membership in the League. For this reason, if our name means anything, we should have some standard of work which entitles an association to membership. This subject, I am glad to say, will be thoroughly brought out in our addresses today, and is of vital importance to the worth and efficiency of our organization.

Thus far, in many communities and not with-

* Read at the first annual meeting of the League in Boston, April 1, 1915.

standing the efforts of anti-tuberculosis associations, there has been a lack of proper response to the legislation which has been enacted during the past four years with reference to the establishment of hospitals for advanced cases in cities of 10,000 inhabitants or over, and for dispensaries in cities and towns of 10,000 inhabitants or over. At the time of writing, out of 35 cities in Massachusetts, but 16 have established hospitals, three or four of these having been founded by private means. The others are of municipal origin.

Of the 54 cities and towns of 10,000 or more inhabitants, 21 say they have dispensaries, the term being apparently somewhat elastic; for, up to the present, a decided difference exists in the scope and efficiency of those thus far established. The amendment of 1914 to the original bill for dispensaries now creates a standard which if followed will be a great step forward.

Fortunately, our newly-appointed Commissioner of Health has put himself on record as intending to see that the laws upon these matters are strictly enforced, and we hope to see during the next year those cities and towns, which have been laggards thus far, coming to the fore and adopting measures which are essential to the welfare of all. It should be the function of the members of our League throughout the state, so to influence public opinion by every means in their power that our Commissioner may be enthusiastically supported in his laudable endeavor to see that the laws are obeyed.

Wherever tuberculosis exists, we shall have to come face to face in a greater or less degree with one problem which is of great importance and to which my attention has been very strongly drawn recently, viz.: What shall be done with the incorrigible consumptive who, in spite of instruction, admonition, or threats, persists in disobeying hygienic laws and wilfully fails to do his part in lessening the danger of contagion?

At the meeting of the Eastern Branch of the National Association for the Study and Prevention of Tuberculosis, in Bangor, Maine, last October, a member of the Board of Health of Haverhill,—who, unfortunately, has recently died,—gave a most impressive account of his attempt to remove incorrigible consumptives from their homes. On account of the restricted powers of the Board of Health, he was continually hampered in his endeavors to control several cases by lawyers who aided the offenders, and, because of this, his hands were completely tied in the performance of what he knew was of paramount importance to the health of the citizens. The account of his various troubles and tribulations was interesting and even amusing, and tempted one to see only the ludicrous side of life, had not the underlying seriousness of the man convinced one that he had been dealing with one of the most difficult and serious prob-

lems which must be grappled with and solved if we desire success in our efforts to control this disease.

Drastic measures are always to be undertaken with extreme caution, and only when less strong means are unsuccessful.

In the case of tuberculosis, moreover, the fact of the long duration of the disease adds greatly to the difficulty of dealing with it in all its phases. With the acute infectious diseases, it is comparatively easy to seize upon a dangerous case and confine it closely for a comparatively short space of time. Not so with the consumptive, dragging out long months and years in the course of the disease: a fact which changes the moral aspect, as it were, of the question of dealing with such cases. For the welfare of our state, however, we are justified in demanding enlarged powers for our boards of health, by which sterner measures not inconsistent with kindness and regard for the feelings of others may be used for the enforced isolation of the incorrigible consumptive who persists, by careless and dirty habits, in making himself a source of danger to others. Lest there should be fear in the minds of some as to the justice of such summary procedures, it should be stated that amendments to existing laws have already been proposed by which the rights of patients will be amply protected before measures necessary for the public welfare shall be adopted.

Since 1912, four states have adopted laws for compulsory segregation for incorrigible cases: New Jersey, New York, Wisconsin and Minnesota, but there is a marked dissimilarity in the methods of legislation upon this important subject, and thus far one is left in doubt as to the comparative merit of the different laws passed in the various states.

The question has not infrequently been raised of late about the necessity of keeping up anti-tuberculosis associations in communities which have taken definite steps towards establishing local hospitals, dispensaries and other methods of overcoming the disease. It is my firm belief that the time has not yet come, and is not likely to come for many years, when such associations are unnecessary. In my opinion, they should be independent, as a rule, of all institutions which deal with the disease, but it should be their function to see that proper measures are adopted and enforced, and to act as constant aids in settling problems as they arise, both in securing legislative aid and in keeping facts constantly before the public. There is always danger, after certain important steps have been taken, that the public will believe that everything necessary has been done and that no further effort is needed. Inaction and the danger of falling into ruts may easily result from such an attitude of mind, and it is the function of anti-tuberculosis associations to counteract this tendency.

One other vital question for the public viz.: the more widespread establishment of open-

air schools and of so-called "preventoria," or special sanatoria, for the reception of children who are showing symptoms of debility, which may be the forerunner of subsequent disease, and even for those who have already shown undoubted evidence of tuberculosis.

We can safely say that it is gradually becoming the established belief that tuberculosis, often in latent form, in childhood is the forerunner, much more frequently than was formerly supposed, of active disease in adult life. The importance of proper attention to this phase of the question, therefore, cannot be overestimated.

The beneficial effect of open-air schools upon the health of children thus far shown should certainly encourage us to push this matter much more energetically than has been done up to the present. As a concrete example of this, I should like to mention a letter recently received from a teacher in one of our large cities, she having been a graduate from the Sharon Sanatorium, seventeen years ago, after a long, successful struggle against tuberculosis. A short time ago, she wrote, not only of her own good health and almost interrupted seventeen years of teaching, but she added the significant words, "I not only know the inestimable benefit of fresh air upon myself, but I am constantly teaching it to my pupils. During the past winter I have had the windows of the school rooms almost constantly open. During epidemics of 'colds' among most of the schools in Lowell, this winter, not one of my children has been out of school or incapacitated by a 'cold,'" a statement which not only stands for the value of fresh-air treatment, but shows us the value of sanatoria as schools in themselves for teaching people the simple but important laws of hygiene: the strongest factor we know in the practice of what we call "preventive medicine."

A school has been established for the tuberculous children who are patients at the state sanatorium at Westfield, Mass.—the only one of our state sanatoria to adopt the plan. During the past year the Boston Consumptives' Hospital has opened a school at Mattapan, and the state school at Canton for crippled children should be included in this list although not strictly confined to cases of tuberculosis. At the Sharon Sanatorium,—a private institution,—hitherto intended for women or girls only, a new department is to be established through the generosity of a relative of a former benefactress, and plans are now developing for a building to be devoted to the treatment of boys and girls under the age of fourteen who are showing symptoms of tuberculosis, especially of the pulmonary variety. It is planned to combine a certain amount of school work with the treatment, which, when done, will mark a new departure in the methods of private sanatoria in this part of the country.

The foregoing subjects are a few of the many important ones which come up in any consideration of anti-tuberculosis work. Proper housing of the poor, and factory supervision are matters

which can be touched upon here merely to urge their vast importance and the necessity of concerted action to ensure proper enforcement of existing laws.

In closing I can only reiterate my firm belief that by coming together in this way, we shall by patient, persistent and energetic work accomplish much towards limiting the ravages of this disease, with the prospect of gradually relegating it to the class of preventable ills of the human race.

II.

WHAT THE ANTI-TUBERCULOSIS ORGANIZATIONS CAN DO TO HELP THE STATE DEPARTMENT OF HEALTH.

BY ALLAN J. McLAUGHLIN, M.D., BOSTON,

Commissioner of Health, Massachusetts State Department of Health.

I WONDER if the individual members of the Massachusetts Anti-Tuberculosis League realize the full possibilities of their organization in the prevention of tuberculosis. The underlying motives that bring most of us into organizations of this kind are usually those of charity, humanitarian feeling and sympathy with suffering, rather with the idea that suffering is centered in the individual. This is perhaps our motive at first. But we can take no part in a movement of this kind for any length of time without realizing that the individual after all is only a small part of a great problem, and that the point of view must be that of the community rather than the individual. The care of the individual of course sometimes lies along parallel lines with the prevention of the disease, but after all the keynote of prevention is control of the individual.

Now the health officer in many cases has been accused of being cold-blooded and mathematical. I have been in countries during epidemic times where we have been accused, and I think we should have had to plead guilty, of neglecting the individual patient because we did not consider that our function; and although it was unfortunate that there were not officers enough to give that individual care to the patient, as responsible health officers we felt it was justifiable to neglect the individual for the good of the community. Fortunately, in tuberculosis, the two lines of care of the individual and prevention of the disease run parallel, so that we have no need here to neglect the patient in order to carry out our line of preventive work.

The health officer's duty today is not only to prevent disease but to keep people well. That is, he works along the line of preventive medicine, and the fact that he has been called mathematical and cold-blooded is accentuated by the fact that he bases his work on vital statistics. It is mathematical to that extent, and perhaps he is cold-blooded. He has to adjust his finances

to the needs of the situation. A couple of years ago a good friend of mine and a health officer said, "It would be better for the city to spend \$150,000 than to have one death from typhoid fever." It was beautiful as sentiment but rather expensive. A health officer must be a business man. He must talk to business men; get his money from business men. He must show them that he spends his money according to the needs of the situation.

Again in tuberculosis we are fortunate. We need no justification for spending large sums of money. A health officer looks first at the death rate. He finds that 80% of his mortality is due to six or eight big causes. There are two things that will justify him in attacking those causes. He finds those two things are: first, is it a big enough factor to consider; second, is there any hope of getting any result for the money spent? You will excuse me for speaking in this business-like way. I have some sentiment but I have to look at this other side of it. That is the way health officers must look at it. Tuberculosis is one of our great big problems. In total deaths it is one of the greatest causes of our general death rate. Further, it is not a hopeless proposition but is one of the most hopeful with which we have to deal.

There are two general lines of activity that promise large returns. I may seem cold-blooded, but I apologize for that to cover the entire talk. First, to get control of the open case of tuberculosis for as many months as possible prior to his death. We know that he is far more dangerous in the last months of his illness than he is when the disease is in what we call the second stage. Second, to find out and get control of the incipient cases to prevent them from becoming open cases. Those two lines of activity, if pursued under proper direction, with proper diligence and enthusiasm, will cut the death rate from tuberculosis in two in this state inside of five years.

Now how can this be done? We have on the statute books today two excellent laws that make this result possible. The splendid state sanatoria are struggling with the burden of open hopeless cases which prevent the admission of the hopeful incipient case that might be arrested and cured, so that in spite of the splendid efforts of the board of trustees of hospitals for consumptives they are not doing what might be done in the way of prevention. That is, they are doing neither one of these two things. They have not bed capacity enough to take care of the fatal cases in the last months of their illness, nor should they be expected to do such a thing. This is the function of the local hospital. On the other hand, the admission of these cases, which is almost inevitable under existing conditions, prevents the admission of the hopeful case which might be prevented from becoming a hopeless or open case. As it stands at present, the waiting list is so long that the incipient case, which is hopeful at the time he is found, cannot be ad-

mitted until he is beyond the point where he could be saved.

The hospital law provides that cities and towns shall build tuberculosis hospitals to care for their consumptives at home. It works two ways. In the first place it relieves the state sanatoria for the purpose in which they can do the greatest good in this problem—that of taking care of the incipient cases, and it affords the dying consumptive the care and control that is necessary to prevent him from being a menace, —near his home, where he is likely to stay. I will not go into that problem any further. Other speakers will take it up. You know as much about it as I do.

The other law is the dispensary law. In order to follow the second line of activity, to find the cases early and get them under control, to follow up the arrested cases and see that they stay cured, to give proper advice to the tuberculous patient and to his family, it is necessary to have a proper dispensary. The dispensary law provides that all cities and towns of 10,000 inhabitants or over shall have these dispensaries.

One great function that this Anti-Tuberculosis League can perform is to assist in the building of these hospitals. There are certain groups of towns, perhaps four or five towns adjoining, no one of which is large enough to support a tuberculosis hospital but which can be combined in a plan to build a joint hospital. I know of no agency that would be as effective as the local anti-tuberculosis society in effecting this result. Where this result is desirable we have found it to be very difficult to obtain. We find that three or four towns, we will say from 5,000 to 10,000 or 12,000, could, with benefit to all, build a joint hospital. It is good business. It is more economical to conduct a 50-bed hospital than 5 10-bed hospitals. It should be done. We find it is difficult to effect because town A proposes to town B and town B believes that town A is trying to put something over on them. Towns C and D are in the same category and the project falls through. It is in such matters as these that the local anti-tuberculosis societies working together as a unit can stimulate that joint co-operation to build a hospital to take care of four or five such communities.

The other great function that may be performed in the way of aiding the State Department of Health in this campaign against tuberculosis is in the establishment of tuberculosis dispensaries. Under the law before mentioned, if you allow the cities and towns to establish their dispensaries they have only one idea—to avoid paying the fine. They have not any particular interest in what kind of a dispensary, or in what kind of rooms are furnished, or what kind of care is given, or how many cases are found. In fact the fewer found the fewer that will have to be taken care of. I regret to say that this attitude is not uncommon. It is necessary to have some stimulus to arouse public opinion to the point where they will do their duty in regard

to the tuberculosis problem, and the local anti-tuberculosis society can do more good in this way than any other, even more in this way than they can in the establishment of hospitals—not only to see that there is a dispensary but to see that it is the right kind of a dispensary.

The previous speaker, the chairman, Dr. Bowditch, said very rightly that the necessity for these organizations would not disappear for some time. I do not believe that any of us will live long enough to see the necessity disappear. Personally I would place upon them the necessity of policing the local city and town governments to see that they carried out the plans in regard to tuberculosis and did their full duty to the public. In some instances they will have to establish the dispensary themselves and finance it. In other instances the municipal council will furnish the funds to establish the dispensary, but I do not think that relieves the anti-tuberculosis society of its plain duty to see that it is a proper dispensary, and to work with the local board of health. When the board of health will not establish a dispensary it becomes the duty of this organization to establish such a dispensary and to finance it. If they cannot get the local board of health to take charge of it, then they have the saddle on their back and they must carry the load. I hope that appears to you as great a responsibility as it does to me—that responsibility I am going to ask the League to place upon you.

I might say a word in regard to team work. We are setting you the example here in Boston. We have three great agencies working along similar lines and the team-work is an example of what can be done—the Trustees of Hospitals for Consumptives, State Department of Health and the Anti-Tuberculosis League. I can assure you that we have the finest kind of team work. We are going to get results. I ask you to try to establish the same kind of co-operation with your local board of health and your local city government.

In regard to the enforcement of the law it seems to me there would not be any justification for having these excellent laws if we did not enforce them. We have given cities and towns to July 1 to establish dispensaries, and until September 1 to comply with the law in regard to hospitals.

III.

THE PRESENT SITUATION IN REGARD TO LOCAL TUBERCULOSIS HOSPITALS.

BY JOHN B. HOWES, 2D, M.D., BOSTON.

Sec. Trustees, Massachusetts Hospitals for Consumptives; Assistant Visiting Physician, Massachusetts General Hospital.

WISE legislation should be the result of a strongly developed public opinion. Sometimes it is in advance of such opinion and at other

times it lags behind. This is shown in a striking way in the working out of the tuberculosis hospital law known as the Isolation Hospital Act, which was passed in 1911. This law requires every city in this Commonwealth to have a local tuberculosis hospital or its equivalent. It was amended in 1912 so that private incorporated hospitals might come under this act. In some cases, such as Boston and Cambridge, this act was quite unnecessary, as public opinion in both these cities, and elsewhere, had already realized the need of a local tuberculosis hospital and had brought about the construction of such an institution. In other instances, comparatively few, it was the passage of this law which aroused public opinion into activity and resulted in the immediate opening of such a local hospital. In other instances the law has apparently been allowed to remain a dead letter until recently; a compliance with it has been evaded by various methods too well known to require enumeration.

At the present time there are in Massachusetts, 54 cities. Of these 54, 18 have local tuberculosis hospitals, each of which has been approved by the State Tuberculosis Commission under the terms of the so-called Subsidy Act. The local hospitals in these 18 cities provide 1042 beds, to which total can be added 40 more from the recently opened Hampshire County Sanatorium, making the total 1082. The total number of cities that have really complied with this law, in that although having no tuberculosis hospital of their own they have made arrangements with nearby cities which are provided with such institutions, would bring the total up considerably higher. Cambridge, for instance, with 88 beds, receives patients, mostly women, from Belmont and Arlington. Fitchburg, with 29 beds, occasionally receives patients from Shirley, Leominster and other nearby towns. Lawrence, with 88 beds, has no extra room for men, but plenty of extra beds for women, and accommodates nearby towns. Lynn, with 60 beds, does the same. The Sassaquin Sanatorium, a privately endowed institution in New Bedford of the highest class, takes care of New Bedford primarily but also accommodates the surrounding towns in the Cape district. Pittsfield does the same. Salem, with 36 beds, has plenty of room for both men and women. For some reason or other, which I have been unable to understand, Salem has placed an almost prohibitive price for board so that nearby cities and towns have not been able to avail themselves of the empty beds in this hospital. Waltham has 17 beds, with vacancies for both men and women, and receives a certain number of patients from both Newton and Watertown. The recently opened hospital in Worcester, with 55 beds, is unable to receive other than local cases. Fall River, with 56 beds, is kept full with local patients.

How far our present health department will go in allowing such combinations as mentioned above cannot be foretold. Each case naturally must be decided upon its individual merits. At

the present time, for instance, Newton, one of the wealthiest cities in the state, has absolutely no accommodation for its tuberculous patients but sends them to the Waltham Hospital or depends entirely upon our state sanatoria. I am quite safe in stating that this situation will not be allowed to continue and that Newton will be forced to build a hospital of its own, and will not be allowed for a much longer time to evade its just responsibilities. Brookline has no tuberculosis hospital worthy of the name. I believe that here also no combination will be allowed with any other town. On the other hand, Cambridge has for some time taken care of patients from Arlington and Belmont. This arrangement seems to work very satisfactorily and will probably be allowed to continue. Recently Melrose has been making tentative arrangements with Waltham and Lynn to care for its tuberculosis patients. I am sure that here no permanent arrangement of this sort will be allowed, as it is illogical in every way. On the other hand, were Melrose to suggest a combination with either Malden or Everett I know that it would be looked upon with favor. There are 18 cities with a total population of 553,000 that have no local tuberculosis hospitals. Lowell, with a population of 106,000, heads this list. It is to be hoped that this city will not be allowed very much longer to continue in its unenviable position. Brockton has so far taken no action in regard to this matter, but depends upon the state sanatoria almost entirely. Aside from this, Brockton has shown commendable activity in its tuberculosis work. Malden has appropriated a small amount and has prepared plans; nothing further, however, has been done. At present patients from this city are sent to Somerville or Cambridge. Newton and Taunton have both prepared plans, but have done nothing further. Everett has a tuberculosis hospital nearing completion. Quincy, Chelsea, Gloucester and Marlboro have prepared plans, but have done nothing else. Revere has made a definite arrangement with the city of Lynn for the care of its tuberculous patients. This is a perfectly logical procedure and will doubtless meet with approval. North Adams, Beverly and Attleboro are considering the matter, but have taken no action; while Melrose, Woburn and Newburyport have as yet done nothing. Among the larger towns which will probably be called upon by the health department to provide themselves with proper tuberculosis hospitals, Brookline, with 27,000 inhabitants, stands first on the list. Brookline town officials seem to labor under the curious impression that there is no tuberculosis in their midst and that they have no tuberculosis problem. It is comparatively easy to dispel this idea, however. Leominster, Peabody, Gardner, Milford and Adams have done nothing. Gardner, however, has a most active and excellent health board and tuberculosis association, and at present seems to handle its local problem in an admirable and efficient manner. Adams has re-

cently taken up the matter, and is preparing plans. Framingham has as yet done nothing. Clinton is fortunate in having a privately endowed tuberculosis hospital of the very highest class. Weymouth, Watertown, Southbridge, and Plymouth have done nothing. Weymouth plans to coöperate with Quiney; Watertown might well coöperate with Waltham. Plymouth is in urgent need of local accommodations of some kind. Webster, a manufacturing town of 11,000, should have some provisions for its local cases. Methuen, Wakefield and Arlington, 11,000 inhabitants each, send their patients to Lawrence, the State Sanatoria, Somerville, and Cambridge, respectively. Winthrop at present sends its patients to Lynn.

This is an outline of the present situation with one exception, which is the question of the county tuberculosis hospital. Last year a bill was passed allowing Hampshire County to construct a tuberculosis hospital. This has been done at Leeds, not far from Northampton. A bill is before the present Legislature, which has been reported favorably, to allow Barnstable County to do the same. Next year it is very likely that Franklin County may put in a similar bill. Each of these counties is distinctly suited for the county hospital idea, there being no large cities but only small, comparatively isolated towns in these districts. This is particularly true of Barnstable County. The difficulty which has arisen so far, and it is apparently a real one, lies in the fact that the present Hampshire County institution is called a sanatorium and is endeavoring to do sanatorium work. This, of course, is not what it was intended for, and is not what is desired. It is, however, quite natural that the superintendent should prefer to deal with incipient cases rather than to take the hopeless and dying ones. I hope very much, however, that it will be made clear and definite that the county hospital, wherever it exists, is simply to take the place of local hospitals and is not intended, in any way, to supplement our state sanatoria.

At the present time the outlook is distinctly encouraging. The greatest factor for good in the present situation is our State Health Department under the strong and aggressive leadership of Dr. McLaughlin.

Dr. McLaughlin, with the backing of an able health council, has wisely decided that this law, requiring local tuberculosis hospitals in every city and in certain towns must no longer remain a dead letter. He has put the proper machinery in motion to see that this law is enforced. He is using the milder methods of persuasion wherever possible, but is apparently fully prepared to use stronger measures in certain instances, too well known to require mention. The result of this activity on his part should mean that in a comparatively short time our state sanatoria at Rutland, North Reading, Lakeville and Westfield will be sanatoria in every sense of the word, where patients only are

received who are physically in such a condition that they can be benefited by real sanatorium treatment, and mentally and morally so constituted that they can coöperate with the efforts of the state to make them well and to restore them to their former place as useful citizens. Our local hospitals, as a part of this plan, will then care for far advanced cases, patients who should be near their relatives and friends, unruly, ignorant and incorrigible patients, who are not suited to our state sanatoria, and emergency cases of whatsoever kind.

Dr. McLaughlin already has the strong backing of the medical profession in his endeavors; to this should be added the sincere, earnest co-operation of every citizen of this Commonwealth.

IV.

LOCAL TUBERCULOSIS DISPENSARIES.

BY WALTER G. PHIPPEN, M.D., SALEM, MASS.

Director, Salem Tuberculosis Dispensary.

You all know that Massachusetts now requires all cities and towns with a population of 10,000 or more to maintain a tuberculosis dispensary. In order that we might know how many cities and towns were complying with this act and what their dispensaries were like, your committee sent out a questionnaire to the fifty-four cities and towns that were required to have a dispensary. The answers to this showed that only twenty-two out of fifty-four have such a dispensary. These differ in many respects. Some are controlled by local boards of health, some by local anti-tuberculosis societies, and some by special boards of trustees. Some are associated with general hospitals, some with local tuberculosis hospitals and some are independent of either. Some have nurses or a nurse connected with them and some have not. Some are open one hour a week. Some are open every day. Last year's legislature thought it wise to standardize these dispensaries and gave that power to the state department of health. This department wisely determined that the standard should not be too high, so that it should not prove a hardship to any town, but that at the same time it should be complete in the fundamental things. It has therefore issued a circular of minimum requirements, and ordered that they must be complied with before July 1. At the present time only four of the twenty-two already in existence fulfil these in all respects.

Apparently this order has caused some confusion and one might almost say consternation among the thirty cities and towns that have no dispensary. This is most noticed in the smaller towns that have or think they have only a few cases of tuberculosis in a year, and that therefore they do not need a dispensary. I think this idea comes about from an insufficient knowledge

of what a tuberculosis dispensary is and of the need it fills in a community. I propose, if I can, to show you what constitutes a good working dispensary for a small city or town and what work it should do.

In the first place let us clearly understand that there are two distinct types of dispensaries.

1. A clinic solely for the examination and treatment of patients having, or suspected of having, tuberculosis.

(a) The tuberculosis department of a large general hospital.

(b) The out-patient department of a tuberculosis hospital.

2. An examination clinic in connection with a local agency for all anti-tuberculosis work.

The first type is found in the larger cities and towns and is most adapted to their needs. I shall not consider this type further.

The second type of dispensary should be the center of activity of all local anti-tuberculosis work. It should do more than offer diagnosis and treatment. It should serve as a general information bureau for tuberculosis.

Such a dispensary may be managed by the local board of health or by the anti-tuberculosis association or by a combination of both. In any event both these organizations should work in perfect harmony. There seems to be no good reason why a group of adjacent small towns should not combine in maintaining a common dispensary.

The first requisite of a dispensary is a nurse or social worker, or, as I like better to call her, an instructive nurse. About this instructive nurse the whole fabric of the dispensary is constructed and without her it is of absolutely no value. She need not necessarily be a trained hospital nurse, but she should be familiar with tuberculosis, not only as a disease but as a social problem. She should have at least some training in social service work, and should be able to inspire confidence in patients and officials as well. She must assume the initiative in the tuberculosis work of the community, and must be forceful, stimulating and tactful.

The next requisite is the headquarters. Two outside rooms are required, a waiting room and an examining room. They should be situated in a reasonably quiet, central part of the town. They need not be large but they must be light and airy. Two rooms of this sort in an office building can usually be obtained for a moderate rental, say \$20 or \$25 a month. Not much furniture is necessary to start with. A desk and chair for the nurse, a settee or few chairs for the patients and a chair or stool in the examining room. A tactful instructive nurse can usually get this furniture donated.

The next requisite is a physician. He must be able to recognize tuberculosis in its early stages, be a willing worker, and should be interested in the social side of the disease. One examining physician may suffice at first, but I believe

there should be a medical director and several examining physicians.

The hours during which the dispensary should be open may vary in different localities, but a great deal of care should be used in their selection. Due consideration should be given to the physician's time; otherwise you will not get your staff to come willingly. Also due consideration should be given the patient's time; for instance, a day hour should be arranged to accommodate the school children, because you will have more of them to examine than any other class of patients. The night hour is necessary for arrested cases that are working and for suspicious cases that are working.

If the dispensary is to be of lasting value a careful record of every case must be kept. The general scheme of records, I think, should be uniform throughout the state. In the first place there should be a general card index of all the cases that have been reported to the dispensary. These should be arranged alphabetically and should be numbered. Each card should have a number, which should refer to a folder in which should be kept a history card containing the family, medical and housing history, together with a record of the physical examinations, a nurses' record or social history card, and any letters or notices or information concerning this particular case. These should be filed numerically. A street index should be kept showing every house in which a case of tuberculosis exists, filed alphabetically by streets. It is also well to keep a street index of houses where death has occurred. The history cards are standard Library Bureau cards and can be obtained for about \$12 a thousand. The other cards are also standard and at a less price. I should be glad to show samples of the cards we use to any that are interested.

The addition of a pair of scales for \$12, a few clinical thermometers for about \$4 a dozen, paper napkins \$.75 a thousand, sputum cups \$6.35 a thousand, diet lists and leaflets free, and your dispensary is established.

The next question is, what are you going to do with it? It is one thing to establish a dispensary and another to use it. You mustn't expect the patients to walk into the dispensary of their own free will. They will have to be sent, I might perhaps better say, brought there. In short, the dispensary must be fed.

Patients should come through the following agencies:—

1. The local anti-tuberculosis society.
2. The local physicians.
3. The school physician and nurses.
4. Charitable relief organizations.
5. Friends of tuberculous patients.
6. Hospitals (including state sanatoria).
7. Personal applicants.

I put the local association first, because if there is one in the town it automatically provides the machinery for feeding the dispensary.

In many cities and towns the dispensary will doubtless be managed and controlled by the association, and I think every dispensary should have a volunteer association working in perfect harmony with it.

Do not be downhearted if the physicians do not make full use of the dispensary at first. Some physicians, I am sorry to say, feel that they will lose control of their patients if they send them to the dispensary. This is not so and should not be so. The physicians should be given every opportunity to keep in touch with their patients, and pains should be taken to inform them of the results of the examination. If you are patient and do not try to force the physicians to use the dispensary you will find that in time they will be ready and eager to coöperate.

The school physician and his nurses are very important contributors to the dispensary and should supply a very large proportion of the cases. They are in a position readily to discover the anemic and under par children and have sufficient authority to get them to the dispensary. This more or less routine examination is the only way to discover early cases among children, and we all know what good results are to be expected in their treatment.

The various charitable and relief organizations, including labor organizations, should be urged to make use of the dispensary. They may be expected to offer a large number of suspicious cases at least.

One of the most hopeful signs of the educational value of the work is the number of patients brought to the dispensary by old tuberculosis cases. Many new cases are discovered in this way.

If there is a general hospital in the town it will be very glad to make use of the dispensary and will soon be found to recommend all of its tuberculosis patients there. Notice is now sent to every board of health and local society whenever a member of that community leaves the state sanatoria. These should be immediately reported to the dispensary, and they should be looked up and made to report regularly. This is one of the most valuable functions of the dispensary—keeping track of ex-sanatoria patients and keeping them up to the treatment.

In mill towns and cities and in those places that are conducting an active educational campaign personal applicants will be numerous. These applicants may be expected to increase from year to year as the value of early diagnosis is spread among the multitude. In Salem five years ago only a very few applied; last year 54 out of 144 applied of their own accord.

A tuberculosis dispensary differs from any other kind of a dispensary in that every case admitted is always on the active list; even in case of most deaths the family must still be followed, especially if there are children. Therefore the criticism that because a town has only a few cases reported in a given year it does not need a

dispensary, will not hold water. The dispensary is needed because of all the accumulated cases of the past and the acquisitions of the future. Moreover, one new case of tuberculosis may mean ten or twelve additional examinations. If a town has three cases reported one year it may have sixteen the next, as actually happened in one of our towns that has no dispensary. The actual number of cases reported is by no means an accurate index of the number of cases of tuberculosis in the community. In Salem last year we had 114 new cases reported, while during the same time we had 208 cases on our active visiting list, and made 281 examinations at the dispensary. In one town, during a given series of years, seventy-five per cent. more cases died than were reported. Remember your dispensary must keep track of and re-examine all suspicious cases, all ex-sanatoria patients and all children in tuberculous families. This I think may lend a different aspect to the need of a dispensary in some communities.

I have said that the dispensary must do more than examine and treat. It must follow up each patient by means of its instructive nurse. This, I again impress upon you, is the most important part of your work. Let us consider some of the things the nurse will be called upon to do:—

1. Investigate the housing conditions and recommend needed changes.
2. Interview the employer.
3. Provide an outfit for the patient to go to a sanatorium.
4. Provide temporary means of treatment while they are waiting admittance.
5. Provide additional food such as milk and eggs.
6. Obtain the dependent mother's pension.
7. Secure permanent relief for the family.
8. Bring the family to the dispensary for examination.
9. Arrange for the treatment of other illnesses found in the course of these examinations, such as tonsils and adenoids.
10. Obtain the proper orthopedic care for the bone and joint cases. This includes splints, dressings and other apparatus, which requires no end of detail work.
11. Secure proper employment for incipient and arrested cases. This requires also the co-operation of the medical director, who should be the final judge of the fitness of the work.
12. Occasionally cases will be reported by the lower courts, not only for examination, but in conjunction with the probation officers on probation. These cases must regularly report at the dispensary or be seen at home, or in the local hospital, by the nurse.
13. She will be called upon to answer innumerable questions from patients, friends of patients, officials, organizations, ministers and social workers.

These one might call the routine things that she must do and a few cases will give the nurse

plenty to think about if she is new at it. On the promptness and tact with which these things are accomplished depends in a great measure the value of the dispensary.

The amount of help, advice and encouragement given in each case is limited only by the ingenuity and initiative of the instructive nurse.

No doubt some physicians will tell you that they can do these things as well as the dispensary. Perhaps they can or could if they had the time, but they haven't the time to give to the necessary details. After the dispensary has handled a few cases demanding much thought, persuasion and actual labor, you will find the physicians very willing to avail themselves of its services.

I have spoken already of the records. I only further desire to say that they must be kept up to date. The examination must be recorded at the time it is made. The story of the housing must be written up immediately. The record of the nurse's visit must be written as soon as it is completed. Memory should not enter into them. The records are of value only in so far as they are accurate and original. I wish to speak particularly of the street index. In this index are kept alphabetically, according to streets, a list of houses in which there are actual cases of tuberculosis. The value of this is perhaps particularly impressed upon my mind because of the help it gave us in hunting up our cases after our great conflagration. By taking out the cards of the burned streets we had an accurate list of all the cases that had been burned out immediately available. With this list we went through the various camps and places of refuge the day after the fire and removed our cases to a special tuberculosis camp, thus in a measure minimizing the danger of spreading the infection. A special card catalogue of cases coming regularly to the clinic for examination is useful in rounding up delinquents.

I think these facts will show to any one who will think about them that there is need of a dispensary in every one of these cities and towns, or at least in groups of the smaller ones. The question whether the local Board of Health or the Anti-Tuberculosis Association should establish and maintain the dispensary is a question that must be solved in each community. There is much to be said in favor of both. Where there is a local anti-tuberculosis association that is active, much of the preliminary work will already have been accomplished, and if the board of health of such a community elects to establish the dispensary it should at least allow the active workers of the local society to share in its operation. In no case should there be a reduplication of effort. If a local society has a capable instructive nurse she should be made the dispensary nurse. In like manner the interested physicians should be put upon its staff. It must, however, be remembered that the boards of health have the authority to enforce rules and regulations, which a volunteer society has not.

In Salem the Dispensary has always been maintained by the Anti-Tuberculosis Association, and has been dependent upon voluntary contributions, except supplies of sputum cups, carbolic acid, etc., which are supplied by the Board of Health. The Board of Health has, however, always given its hearty coöperation and support, and the two have worked harmoniously together. The Dispensary came by a process of evolution as the work grew. A few interested people, a little money, an instructive nurse, a system of records, a class, small permanent quarters, regular hours, and our Dispensary was established. This process took three years. I hope that what I have said, brief as it is, will show these communities the need of a dispensary and will help them to establish one in three months.

V.

FIRST ANNUAL REPORT OF THE MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE.

BY SEYMOUR H. STONE,
Secretary.

ORGANIZATION.

The need for closer coöperation among those engaged in the tuberculosis campaign of the state having become apparent to the Boston Association, at the invitation of this Association a committee of those interested met on January 8, 1914, for the purpose of organizing an Anti-Tuberculosis League. There were present at this meeting 16 persons from different parts of the state.

The form of organization planned by this committee was presented at the meeting of the Massachusetts Conference on Tuberculosis held March 26, 1914, to which the Anti-Tuberculosis Associations of the state were asked to send delegates. Twenty-two such delegates were present from 13 different cities and towns. A constitution and by-laws were adopted, officers and executive committee were elected and the League formally launched.

PURPOSE.

The purposes of the League are:

To keep the anti-tuberculosis organizations of the state interested in the fight against tuberculosis and informed as to the methods being employed by the state and local authorities.

To assist anti-tuberculosis associations and similar organizations in planning and carrying out local campaigns.

To help organize anti-tuberculosis associations and committees in communities needing them.

To arrange conferences for the discussion of tuberculosis problems.

To secure proper and oppose unwise legislation for the relief and prevention of tuberculosis.

MEMBERSHIP.

Anti-tuberculosis associations and similar organizations may become members of the League upon application to and election by the executive committee. Such associations are entitled to one delegate in the League, and an additional delegate for each 100 bona-fide members. At least for the present no dues will be expected from these associations, but it is hoped that they will see their way clear to contribute something toward the expenses of the League.

All persons interested in the objects of the League may become members by the payment of \$1.00 per year.

The present membership consists of 34 organizations: 22 of these are anti-tuberculosis associations, eight are district nursing associations, two are committees of women's clubs, one is a Red Cross society, and one a committee of associated charities. In addition to these the League has four individual members. Only eight anti-tuberculosis associations in the state have not become members.

COMMITTEES.

Besides the Executive Committee, the League has seven sub-committees, which, since January 8, 1914, have held 20 meetings.

Legislation. The campaign against tuberculosis being so largely dependent, of course, on adequate laws, the League has, during its first year, paid close attention to legislation.

In the spring of 1914 our Legislative Committee made a study of 38 bills before the legislature, while this year it has considered 23 bills.

The chairman of the Legislative Committee and the secretary or some other member of the League has usually presented to the proper committee of the legislature the views of the League on these bills.

The local associations have then been informed of the action taken by the League on the most important of these bills and urged to support such action if they could.

Local Associations and Affiliated Societies. This sub-committee has corresponded with organizations, and in some instances interviewed individuals or committees in Lynn, Milford, North Adams, Waltham and Greenfield, for the purpose of starting some form of anti-tuberculosis work. In one other community the Committee is hoping to be able to coördinate already existing work. The Committee has also helped in starting organizations in Gloucester, Beverly and Lowell, and is ready to render similar service in any other community interested in the stamping out of tuberculosis.

Local Dispensaries. The present field of operation for this Committee is in those cities and towns which have 10,000 inhabitants or over and which are therefore required by law to maintain a tuberculosis dispensary. A study

of these communities, by means of a questionnaire, disclosed the fact that 33 of the 54 admitted having no dispensary, the remaining 21 stating that they had one in some form.

The State Department of Health has now required these delinquent cities and towns to comply with the law and establish dispensaries before July first of this year, and many of them are earnestly endeavoring to meet this requirement.

Local Hospitals and Local Boards of Health. According to information gathered by this Committee 16 of the 35 cities have complied with the law by providing a tuberculosis hospital. In addition to these, two towns and one county have such hospitals. Another county, Barnstable, is seeking permission by legislation this year to establish a hospital. The local hospital situation is, on the whole, encouraging. Many of the remaining 19 cities are either building or have plans under way. The State Department of Health has given these cities until September first of this year to comply with the law which was passed four years ago.

Our Committee has gone on record as favoring the plan adopted by Wellesley and several other towns in combining to employ jointly trained health officers, and urges its adoption by other groups of towns.

Publicity. The work of this Sub-Committee is educational. A small card exhibit, consisting of suitable literature printed in the foreign language common to the section to which it was to be sent was accepted for display in 75 public libraries of the state. A book of "Don't Cards," printed in 19 languages, was presented to six large libraries and 24 anti-tuberculosis associations.

Two printed leaflets were sent out as bulletins for publication in 54 foreign newspapers in the state.

The press bulletins of the National Association for the Study and Prevention of Tuberculosis, which are issued approximately every three or four weeks, have been sent regularly to a list of 245 newspapers in the state. Three bulletins of our own have also been given to these same newspapers. Nine hundred copies of the proceedings of the Massachusetts Conference on Tuberculosis have been sent to those interested in this subject.

The educational campaign has been still further aided by talks by officers of the League and physicians who have given generously of their time.

FINANCES.

Red Cross Christmas Seals. The League was this year appointed state agent for the sale of Red Cross Christmas Seals, the territory including the entire state except Berkshire County.

One hundred and fifteen sub-agents were appointed by the League to sell seals in this terri-

tory. Most of these were anti-tuberculosis associations, district nursing associations and committees of women's clubs. As a result of this campaign, 1,827.982 seals have been sold, the receipts amounting to \$18,279.82. Of this sum $82\frac{1}{2}\%$ or \$15,080.85 is distributed among the anti-tuberculosis associations of the state for use in their local work; 10% or \$1,827.98, goes to the National Association for the expenses of the campaign and the support of the National Association; and $7\frac{1}{2}\%$ or \$1,370.99, for the use of this League, out of which the cost of carrying on the local seal campaign must be paid.

The financing of the League is one of the serious difficulties that we have to meet. Since we cannot solicit in communities which already have anti-tuberculosis societies, our territory is naturally limited, and suggestions as to how we shall solve this problem will be very welcome.

Attention should be called to the assistance rendered the League by the Boston Association, in addition to the \$500 donated by the Boston Association to the League, it has given without charge the use of its office, which means rent, light and telephone service, and the services of its office force.

In looking back over its first year's work, we feel sure that the League has fully justified its existence and that with the broadening field that lies before it, it well merits your continued support.

VI.

REPORTING CASES OF TUBERCULOSIS.

BY WALTER P. BOWERS, M.D., CLINTON, MASS.

THE subject assigned me has, in many of its aspects, been considered many times in the past decade, either by itself or as a feature of the laws requiring that physicians report contagious diseases. I had supposed that about the last word had been said, but since the secretary asked for a consideration of this matter, there must be a definite reason.

First, perhaps the law and rules of the State Department of Health, are not understood by physicians, or if understood, are not obeyed, and second, it may be that the people are antagonistic either to the law itself or to the way in which it is applied.

The law is clear and definite, as shown in Section 50 of Chapter 480 of the Acts of 1907, where it says that: "If a physician knows that a person whom he is called to visit is infected with any one of several diseases named, or any other disease declared by the State Board of Health to be dangerous to the public health, . . . he shall immediately give notice thereof in writing over his own signature to the Selectmen or Board of Health of the town." A penalty of not less than \$50, nor more than \$100 is provided for refusal or neglect to comply with this law.

Section 49 of the same Act provides that a

householder is obliged in the same way to give notice of the same diseases, and is also subject to a penalty not exceeding \$100.

The State Board of Health has decreed that tuberculosis is a disease dangerous to the public health, and therefore under these sections of the law, both the physician and the householder are required to report cases of tuberculosis.

It is my impression that very little has been done to instruct householders about their duty in this matter, and that most of the effort exerted has been by boards of health, and that confined, to a large extent, to sending circulars of instruction, and cards to physicians, which can be filled out and forwarded.

I also had the impression that the reporting of cases of tuberculosis was done less faithfully than when the doctor is dealing with the contagious exanthemata or diphtheria, but also that there is a gradual improvement taking place as a result of the activities of state and local health authorities, and the publicity campaign carried on by anti-tuberculosis associations.

A series of articles in the *Cambridge Standard* under dates of the 12th and 14th insts., attempts to show that cases of tuberculosis are not reported, and under the heading of "The Doctor Who Does not Report Tuberculosis," puts the blame upon the physician.

If these cases are not reported, the blame should be put upon the doctor, for the laity has not generally been made to understand its responsibility, and the people naturally leave these matters to the physicians.

Dr. L. A. Jones, one of the District Health Officers, prepared a paper, read in 1913, which shows the facts to be almost identical with those claimed by the *Cambridge Standard*.

The doctors are put into four classes:

"1. All doctors do not know tuberculosis when they see it in its early stages. The fullest knowledge of the diagnosis and treatment of tuberculosis is of recent acquirement, and physicians who learned their art two or three decades ago, and have been so busied with practice as to be unable to keep up a progressive course of study, simply do not know what may be termed 'the fine points' of modern diagnostic science with reference to this disease. It is emphatically stated by the highest medical authorities that when the symptoms of the disease become sufficiently advanced for the physician of this type to recognize them, all hope is past for the patient. Not knowing the disease some doctors therefore cannot report it.

"2. Then there are physicians who believe that it is not wise to tell a patient when he has tuberculosis, or consumption. The medical profession is limiting more and more the scope of this practice of secrecy, but it still obtains, where much more harm than good is done by it. Consumption has hitherto been so hopeless that doctors have been silent because of the effect the lay notion of hopelessness may have on a patient. This, however, is seen to be a most

mistaken policy. It is an evasion which sooner or later is exposed, and thus confidence is irremediably destroyed.

"3. Some doctors simply refuse to report either to the authorities or to the patient's family the existence of consumption because of the stigma it is supposed to bring with it. They would shield the patient at the expense of the public.

"4. Other doctors do not tell the patient that he has tuberculosis because the patient is, in certain early stages, unlikely to believe him, to regard him as an alarmist, and to transfer his consultation to another physician. This sometimes leads some doctors to put off with remarks about 'a weak chest' or 'a run-down condition,' what is really a case of incipient tuberculosis needing prompt and strict attention in the proper way."

A secretary of a board of health told me today that a certain physician found that after promptly reporting cases no more patients of this class applied to him.

There is a great deal said nowadays about standardizing the various departments of medicine. We are urged to standardize our hospitals, to standardize our surgery, etc., etc., and it may be well for us to recognize some simple working formula in dealing with our patients who present symptoms indicative of early tuberculosis, for the purpose of making clear just what their symptoms indicate, and that a study of the case for a comparatively short time will decide the matter, and for their own good these patients should be willing to coöperate with the doctor in having the case reported while it is even in the suspicious stage. Therefore there may be a field for the activities of our organization in securing more and better coöperation on the part of the people, but we must first secure better coöperation by physicians.

There is in law the theory that every attorney is a part of the machinery designed to secure the administration of justice. There should also be in medicine a strict adherence to the analogous theory that every physician is a part of the health administration of the state, and although not in all instances a member of a board of health, his duty is just as broad and definite as that of the elected official. I fear that average medical practice is quite as apt to fall short of this conception as that some legal practice is perverted from the highest ethical standards.

Here in Massachusetts the law is plain, the rules of the State Department of Health are clear and definite, and every intelligent practitioner knows his duty.

Because of the natural alarm usually experienced by the patient and friends, and the prejudice aroused in having to be investigated and controlled by authorities, we must feel the greatest sympathy for those directly concerned, and should make all possible effort to relieve one already suffering mentally and physically, from unnecessary annoyance, and lead rather than

coerce a patient to coöperate with the authorities. But to the medical man the problem is simple, direct, and does not admit of elasticity. All doctors who do not loyally comply with the law should be made to do so, first, because it is a duty which one owes to the state, and, second, because of the advantages to the patient.

The duty to the state is to prevent disease, and the state is in the first instance dependent upon the practitioner to put into operation the proper machinery for the control and elimination of the danger.

In order to do this, all facts pertaining to the prevalence of the disease must be available, and to be of the greatest value must be known early. Where it is found that the mortality records exceed the morbidity records, there is a reasonable ground for criticism, for where people die of tuberculosis without having been reported, the disease has existed uncontrolled. Present knowledge, if put into operation, is undoubtedly sufficient greatly to reduce the economic loss from tuberculosis.

The great majority of people can be influenced to coöperate with any plan which promises better conditions if dealt with diplomatically, and it is possible that progress is hampered more by indifference and ignorance of some physicians than by the laity.

Sanitorium officials and other experts have supported the assertions made above and have told me that the doctor of average ability cannot or will not recognize tuberculosis in its early stages. If the average doctor does not, then most of the practitioners below this status surely will not.

Their failure to recognize the disease early is due either to inability to understand the problem involved or to the fact that some practitioners have not taken time to familiarize themselves with modern diagnostic methods, or devote sufficient time to each individual case. Sometimes the popular busy doctor is one of the offenders, and his methods may support the statement sometimes made that the doctor to be avoided is the one who may be popular, and hence overworked. If these contentions are sound, they constitute a scathing arraignment of the profession, and we should look for the remedy.

This remedy seems to lie in efforts to educate physicians already in practice and also in an education of the law makers who hitherto have declined to enact a good registration law; and constant effort should be made to lead the people to understand that there is danger in the incompetent practitioner of medicine, and uniformly good medical service can never be secured until the law requires that every registered physician shall be well trained.

Massachusetts has been one of the fields for the work of the medical pretender, and we are living under the shadow of that calamity which gave state license to all medical frauds who had been deluding the people for a period of three years or more, for all such were allowed by the

medical practice act to continue to fool part of the people all the time, and even now the state makes it possible for untrained men, who have a memory sufficiently active to repeat that which may be culled from quiz compends, to be registered.

Dr. Holmes, you know, regarded mere memory as the lowest intellectual attainment, and yet our system does not require that a man must be trained to use his eyes, ears, fingers or reasoning faculties, to become a practitioner. If he can write from memory a reasonably good book, he can sometimes secure registration. Even under this defective law many imperfectly trained men are rejected, but the board having this matter in charge is handicapped in not having the right to require that a man shall have been properly educated before securing the privilege to practice.

The state, for the protection of its citizens, should either amend this law, making it obligatory that applicants for registration should have had good training, or else it should provide the means for examinations which would be a sufficient test. Such examinations would have to last over a period of weeks to be of value, and are unnecessarily cumbersome.

This organization should be interested in medical legislation, and demand of the law makers that Massachusetts shall have at least a good average law. When such laws shall have been enacted, the usual natural process of death will gradually clear the state of the low grade doctors.

The remedies then, so far as doctors are concerned, consist in a better medical registration law, and an enforcement of the health regulations, and here we come to another matter which needs correction.

The law requiring reports of cases of tuberculosis is good. The administration of this law, not as it should be.

As a preliminary to the study of this subject I asked for information from boards of health and secured 109 replies. These replies show that in 29% of the reported cities and towns the law is not complied with, and in these 31 cities and towns the proportion of unreported cases runs from 12% to 100% of the cases known. Only three boards of health report prosecutions under the law.

This is an arraignment of the boards of health. In order to sustain my contention, let me give you their own testimony. I will only read a few reports. One questioned my authority to ask these questions, and I replied that I had no official authority, but that as a citizen of the state, asking information, I had intended no offense, and asked this official to come to this meeting. I hope he is here.

RECAPITULATION.

The state recognizes the importance of reporting cases of tuberculosis, and has made laws requiring this procedure.

The laity rarely comply with the law. Physicians frequently do not comply with the law.

Twenty-nine per cent. of the boards of health do not enforce this law.

REMEDIES.

Educate the people.

Adopt a better medical practice act.

Make the doctors comply with the law.

Make boards of health enforce the law.

VII.

TUBERCULOSIS ASSOCIATIONS AS HEALTH EDUCATORS.

BY MICHAEL M. DAVIS, JR., PH.D., BOSTON,

Director of the Boston Dispensary.

TEN years ago the campaign against tuberculosis was a dream in the minds of a few enthusiasts, who, in 1905, organized the national association for the study and prevention of this disease. Today the campaign is a great national movement with associations in every state and many cities and, counting private and public funds together, it is spending \$20,000,000 a year.

The movement has developed hospitals, sanatoria, dispensaries and visiting nursing; but above all, a great educational campaign. Twenty million dollars are not taken from taxes or from philanthropic purses unless tax payers and givers believe that the results justify the expenditure. The belief that expenditures to relieve and prevent tuberculosis are worth while has been developed in the public mind through a persistent process of education. Last autumn 44,000,000 Red Cross seals were sold in the United States, nearly 2,000,000 in Massachusetts, and every Red Cross seal is a teacher. The anti-tuberculosis campaign has been first and last an educational campaign, as all "reform movements" fundamentally are.

With such remarkable results as the ten years' fight against tuberculosis has shown, the time has gone by when tuberculosis associations need devote much attention to explaining the importance of preventing this disease. The general campaign of education has largely completed itself and the public now needs education on specific points. The tuberculosis germ has proved itself a money-raiser. The time has come when, under the slogan of preventing tuberculosis, and with the leverage and the money which the anti-tuberculosis campaign furnishes, a broad health campaign must be waged, while at the same time attention must be devoted to the education of the public on specific questions of importance, for the reduction of waste or inefficiency in present anti-tuberculosis work.

The very success of the anti-tuberculosis campaign has brought with it two dangers. First,

that of over-specialization, a danger which creates, as it were, a vested interest in preventing tuberculosis, and fails to see its intimate relationships with other phases of militant public health work. The second danger is the popular fear of tuberculosis, which has been so developed as a by-product of the educational campaign that it acts in many ways as a handicap upon existing work and upon further progress. Anti-tuberculosis associations in their capacity as educators must devote themselves to informing the public that while it is well to fear tuberculosis, it is not well to fear it in the wrong way.* The dread of the disease should be based on information as to how the infection is most likely to be carried. They must understand that the way in which infection is usually carried renders a tuberculosis hospital harmless, either to life (or property values) in its vicinity; but that, on the other hand, an active consumptive in the midst of his home and family is dangerous to wife, neighbors, and above all, to the children.

Tuberculosis associations have issued millions of "don't cards." A card with one half headed "When to Fear Tuberculosis" and the other half "When not to Fear Tuberculosis" might be worth considering. Fear is a lever if it is intelligent; but a clog when it merely represents ignorance or half-knowledge.

As health educators, anti-tuberculosis associations must teach the public to stop the waste of money and effort which arises from the discharge of sanatorium patients without adequate supervision after they leave the institution.

The reports of the state sanatorium trustees have emphasized the value of the worker now engaged in this service,—a value not only to certain individual patients, but in stimulating greater activity and effectiveness of local bodies in supervising tuberculosis. The public must be educated to understand that it is not economy to see this work stop with the provision of only one worker; that further provision, correlating the sanatoria with local communities will much more than pay their cost: for the annual expense of the state sanatoria is over \$600,000.

As health educators, tuberculosis associations must educate both the doctors and the public towards the early diagnosis of the disease. It is already well recognized that this should be among the features of the campaign; but how make it a more effective feature? It seems as if the time had come when the most effective way to demand early diagnosis of tuberculosis is to call for frequent, periodical, general medical examination by skilled physicians. People may fear to go to a clinic or office which bears the label of tuberculosis; but they have no ground to dread a general medical examination. It is particularly fitting that we should use the public interest in

* Such studies as that of Dr. H. B. Lampson (*U. S. Public Health Reports*, January 8, 1915) supply excellent educational material. The general public should know that "ordinary exposure such as everyone encounters" was found in Dr. Lampson's studies to bring only 8% of infection, while intimate exposure brought 79%. Such concrete studies when made known to the lay public carry conviction as to the manner in which the infection is spread; while general statements glide too easily in and out of mind.

tuberculosis as a lever in the broader campaign for better medical supervision of all persons, for no disease is more dependent upon general living conditions than is tuberculosis.

As health educators, finally, anti-tuberculosis associations must strive to stop the waste arising from the development of more and more specialties. I have spoken of over-specialization as one of the dangers to which the tuberculosis campaign has led. A string of "public health movements" has followed in the wake of the anti-tuberculosis campaign. There are now societies to prevent infant mortality; to promote better obstetrics and establish pre-natal clinics; societies for school hygiene, for mental hygiene, etc. Each of these agencies is pushing forward special health needs, is advancing a special technique, and is putting doctors, clinics and visiting nurses into the field. Even in smaller communities often two or three, or perhaps four, of these special health interests will be actively engaged in field work. The anti-tuberculosis association may well strive to pool the health interests of a locality and coördinate the special clinics or nurses in one coöperative group, whether they are maintained by a city or by private agencies. Clinics may be combined in one building, the work of different nurses may be coördinated or generalized; and this without the impairment of the integrity of the different organizations supporting the branches of the work. Such pooling of health interests will mean financial economy and gain to public health. Inasmuch as no movement is more dependent for its success on the general advancement of public hygiene than is the anti-tuberculosis movement, none will profit more by this coördination of special activities.

The time has come when tuberculosis associations must be health educators, because this is the more effective way to be tuberculosis educators. The anti-tuberculosis campaign must be a public health campaign, if it is to be most effective. Let public health be on the banner borne on the front of the ear, while the public interest in preventing tuberculosis, already aroused, will furnish the gasoline.

VIII.

THE RESPONSIBILITY AND OPPORTUNITY OF THE TEACHER IN PREVENTING TUBERCULOSIS.

BY THOMAS F. HARRINGTON, M.D., BOSTON,

Director of School Hygiene, Boston.

MUCH of the apparent disagreement among authorities relative to the prevalence of tuberculosis among children is due to the fact that a distinction is not made between a tuberculous infection and a tuberculous disease. It is now admitted generally that all persons are infected with tuberculosis at some period of life. The great majority recover without ever knowing

that they had been infected. In childhood, it is very difficult to detect tuberculosis either by physical examinations or by recognized tests. Reliable data at hand demonstrate that relatively few infected children go on into the tuberculosis state. All infected in the first year or two of life die. Only ten per cent. of all deaths from tuberculosis occur during the ages of five to twenty years, inclusive. Even in families of the tuberculous, the infection of the exposed children is hard to demonstrate. In Boston, there are 7000 cases of positive tuberculosis on record at the office of the Health Department; these people live in 1340 families in which there are 2131 children of school age. A recent study of these children, by which the school nurses secured a report from the family physician or from a hospital clinic, showed that only 304 of the children had tuberculosis in a form that could be diagnosed. A later study of 196 children diagnosed as positively tuberculous confirmed this diagnosis in only eleven cases. Fourteen children of the group were diagnosed as doubtful; forty were deferred for subsequent observation, while 92 children of the group were returned to school as negative cases. A study of over 90,000 pupils in our elementary grades shows that five per cent. of the children were anemic, glandular, or under-sized. In other words, they were physically below par to a degree requiring preventive measures if they were to be saved from genuine tuberculosis. All reliable evidence today demonstrates that the education of the public in the cultivation of hygienic habits of living is the most effective means of combating tuberculosis. Obviously this leads us at once to the class-room. Here are grouped by compulsion, for a long period of the formative age of children, about one-fifth of the population. The opportunity to establish right habits of living is far greater in the school than at any other period or place. This the state of Massachusetts recognized early in the enactment into law that "schools shall give instruction in physiology and hygiene," and further that "in each of the subjects of physiology and hygiene, special instruction as to tuberculosis and its prevention shall be taught as a regular branch of study to all pupils in all schools supported wholly or partly by public money." Other subjects may be taught, e.g. algebra, geometry, language, natural science, kindergarten training, manual training, etc., if the school committee thinks such teaching expedient. Furthermore, the statute provides that every city and town of 10,000 or more inhabitants shall maintain a school in which the subjects of physiology and hygiene shall be taught, and towns which do not maintain a school as required by the statute shall not be entitled to its portion of the appropriation allowed from the "Massachusetts school fund." Nor does the responsibility of the school end here. A further act is mandatory in its provision that "the school committee of each city and town shall appoint one or more school

physicians, who shall make a prompt examination and diagnosis of all children referred to him, and such further examination of teachers, janitors, and school buildings as in his opinion the protection of the health of the pupils may require." Also that every child in the public schools shall be separately and carefully tested and examined at least once in every school year; and further, the school committee is required to keep a physical record of each child and to give notice to the parent or guardian concerning the defects or disability requiring treatment. The statute also places upon the State Board of Education and the State Board of Health the responsibility for carrying out the provisions of the act, including the giving of adequate instruction on these subjects to the pupils in the normal schools. Later legislation requires that all children under sixteen years of age, seeking a working certificate, shall be in good health, sufficient to undertake the work for which the application is made. We might go even further and point out the dangerous trades and occupations which minors, eighteen years of age and less, cannot enter; these trades and occupations require that teacher and school physician shall have some knowledge of the processes involved if they are to act as guides to the pupils entering vocational life. The limited time at my disposal necessitates the restriction of the whole problem to two points only, namely, first, in what manner is physiology and hygiene teaching being carried out; and secondly, what can this state anti-tuberculosis association do to aid in efforts to meet the requirements of the statutes on these subjects. Let us divide the problem into:—

1. The teaching of physiology and hygiene.
2. Medical inspection.

THE TEACHING OF PHYSIOLOGY AND HYGIENE.

Data collected recently from most of the cities and from many of the towns justify only one conclusion, namely, that no subject in the curriculum is so neglected or so inadequately taught as the subject of physiology and hygiene. Many superintendents write candidly that nothing is being done in their communities to carry out this law. Others present a course of study in which less time is allotted weekly to this subject than to any other subject in the daily program. In only a few cities is any special instruction given in the prevention of tuberculosis. There is little or no definite policy carried out, other than in notable exceptions, covering classroom temperature and open windows. Only two courses of study show any correlation between such habits as cleanliness, good teeth, food, sleep, fresh air and sunshine, and the daily home life and school life of the child. The opinion of the superintendents seems to be unanimous that the cause for this state of affairs lies in the lack of preparation of the teacher for the responsibility placed upon her by the statute. In the normal school, where any attention is given to this spe-

cial subject, the course of study is so scientific and so overloaded with anatomy often that it defeats its own object,—namely, to give the teacher-pupil a preparation in methods of teaching the subject in the grades.

The prevention of tuberculosis is not given serious consideration in many of the normal schools.

MEDICAL INSPECTION.

Here the situation is akin to that of physiology and hygiene teaching—namely, inadequate preparation for the work and the lack of a just appreciation of the responsibility involved. Many physicians here and there are making great personal sacrifices to do this work well. On paper, many cities have a very attractive organization; too many communities fail to recognize the tremendous power of health supervision in raising the physical and mental standard of the group as well as of the individual. In only a few cities and towns is there any team work between the health and the educational departments. Little or no medical inspection can be effective unless the teacher is prepared to select the children needing medical care. Normal schools and medical schools are not giving their pupils special preparation. Medical inspection without a "follow up" by school nurses is in the vast majority of cases (more than 90%) a waste of time and statistical gathering only. No remedial or corrective results follow such an inspection. On the other hand, there is a decided trend to rely upon the teacher and nurse combination without the guidance of a school physician. No school principal nor superintendent should take the responsibility of this problem unaided by some medical authority. In summing up, therefore, it can be said that an organization such as this association can do a great good in cities and towns, first, by urging school and health authorities to get together to carry out the statutes quoted above; second, by requesting school authorities to legislate that windows in class-rooms be kept open and that room temperature be kept between 60 and 65° F.; third, by establishing open-air classes for the debilitated children who are not frankly tuberculous; fourth, by providing literature on tuberculosis prevention for distribution in the schools; fifth, by demanding that teachers and physicians be prepared, in normal schools and in medical schools, for this special work.

IX.

MEDICAL INSPECTION OF SCHOOL CHILDREN.

BY FRANCIS LEE DUNHAM, M.D., BROOKLINE, MASS.

INVESTIGATIONS in the department of school hygiene comprehend as many factors of social as of medical or educational importance. Consequently an intimate cooperation between the

school and existing social agencies should be encouraged. The logical approach to the problem of the tuberculous child is through intelligently directed school health supervision. It is toward this specific aspect of the subject that the following suggestions are directed:—

The difficulty encountered in changing long established reactions in adults is generally recognized. It is next to impossible to change an unintelligent parental attitude toward oral hygiene, adequate bathing, proper ventilation, sex hygiene, and other refinements tending toward physical and mental efficiency. Yet intelligent direction in the schoolroom shows definite, practical results. As an example, contrast the daily use of the tooth brush by 98% of the children in a school with poor environment, following six months' instruction, with less than 40% at the opening of the school year. The result is a permanent improvement in the personalities of the children themselves, and is the most logical approach to an intelligent parenthood.

The school child as a potential focus for tuberculous infection cannot receive too insistent attention. One is constantly discovering adolescent children who bear the scars of early infection. The number of anaemic, malnourished, neurasthenic children, suffering from a tubero-toxemia of unrecognized causation is distinctly correlated with the pallid children of pent-up schoolrooms. The scant recognition given to a thorough examination of the 700,000 school children of Massachusetts is mirrored in the inadequate returns made to the State Board of Health respecting the prevalence of the disease.

Although adequate ventilation is recognized as the most potent factor toward securing efficiency from both mind and body, schoolrooms are allowed to be sealed during the winter months. The employment of teachers and janitors of deficient physical health and hygienic training is largely responsible for this unfortunate state of affairs. The acute, infectious cold, which is the basis of much later infection, could be rendered a far less potent cause of disorganization if all schoolrooms were overflushed with open air night and day. I have kept a winter schoolroom at a temperature of 60° with no complaint of discomfort from pupils and with increased mental efficiency. However, such a condition presupposes a healthy teacher and an intelligent exercise of judgment as to change of posture and the use of overgarments, if asked for.

The tendency to regard artificial fumigation as an adequate bactericidal measure in inhibiting contagion is a highly fallacious one. The fumigating plant at the disposal of the ordinary town board of health is perfectly useless save for moral effect. This may be easily proven by any one caring to take the requisite experimental trouble. Desks, seats and floors, thoroughly washed with hot, alkaline, antiseptic solutions and the abolition of dust-collecting oils

will render virulent, incubating chambers, sanitary classrooms.

The development of a constructive, school hygiene through the employment of specially trained persons to act as assistants to the health inspector will greatly assist the present unsatisfactory service. Such assistants should be thoroughly trained in the technic of hospital nursing, social service, and school hygiene; they should be carefully chosen and adequately paid.

To summarize I would suggest:—

1. Individual instruction in school hygiene.
2. An increased professional activity.
3. Insistence upon open windows.
4. The development of a constructive policy toward school hygiene assistants.

X.

TUBERCULOSIS WORK IN THIS STATE.

BY AMY F. ACTON, BOSTON,

Chief Inspector of Incorporated Charities, State Board of Charity of Massachusetts.

You may be interested, at the outset, to learn how the work of the State Board of Charity fits into the supervision of private charities, in which category are included the anti-tuberculosis organizations.

The statutes covering the subject are found in acts of the legislature which severally provide that before issuing a charter for charitable purposes, the secretary of the Commonwealth shall refer the matter for investigation to the State Board of Charity¹; that after incorporation, the board shall annually visit and inspect the work of such organizations as consent to or request such inspection²; and that such charities shall report annually to said board.³

Under the act providing for inspection, the various incorporated anti-tuberculosis associations have been visited from time to time and information gathered as to their policies and methods.

NUMBER OF ANTI-TUBERCULOSIS SOCIETIES IN STATE.

In the 353 cities and towns in this Commonwealth, there are 34 organizations for anti-tuberculosis work which are more or less active. Eleven of these are incorporated anti-tuberculosis societies and six are committees affiliated with other incorporated agencies, such as district nursing societies,—a total of 17 agencies coming within the inspection law.

Twenty-five out of the total 34 private agencies are situated in 24 cities and towns having more than 10,000 population,⁴ and there are 30 communities with more than 10,000 inhabitants in which there is no private agency for anti-tuberculosis work. Eleven of those thus left uncovered have more than 25,000 population. There is, therefore, work awaiting anti-tuberculosis agencies yet unborn.

STANDARDS.

In estimating the value of the work of the various anti-tuberculosis societies, we must first consider the standards by which to measure that work.

Failure of these agencies in the past to standardize and put the right valuation upon their various activities is undoubtedly responsible in large measure for the lack of uniformity in their aims and methods and the failure of several of them to carry on effective work.

It appears to be the well settled opinion of those who have studied the situation that the private anti-tuberculosis organizations should, so far as possible, confine themselves to the education of their communities in the best methods of preventing the inception and spread of the disease; that is to say, it is their part to do the educational work. If for any reason they deem it wise to take on activities that are outside the scope of educational work, opinion seems to indicate that they should do so with the intention of demonstrating the need of such activities and of transferring them to other agencies as soon as practicable.

The reasons for urging the anti-tuberculosis societies thus to confine themselves to the education of the public are: (1) the great need of such work and the fact that only private funds can be used for such a purpose; and (2) that the task of seeking out and caring for those afflicted with the disease, and the cost of the work, are of such magnitude that private societies cannot handle it, while the tax payers have assumed it as their rightful burden. As a part of the state policy for caring for the individual, we have sanatoria for curable cases, and state laws providing for the establishment of municipal hospitals in cities;¹ municipal dispensaries in cities and towns with a population of more than 10,000²; the medical examination of school children;³ the instruction of school children in avoiding the disease;⁴ and provision for the reporting by physicians and householders to the local boards of health of cases of tuberculosis.⁵

With such provision, and adequate laws requiring the municipalities to assume their obligations, it appears to be the province of the private societies to encourage and stimulate their communities to do the work assigned to them rather than to relieve them of it.

Let us see what the various anti-tuberculosis societies are doing to assist in the development of this state policy.

First. Are they endeavoring to awaken public interest in regard to the law requiring the cities of this Commonwealth to maintain tuberculosis hospitals?

In 16 of the 35 cities and in 3 towns,¹⁰ there are 21 such institutions which have been approved by the trustees of the hospitals for consumptives. In another city, a hospital is being built. Two of this number are maintained by anti-tuberculosis societies. During their last

fiscal year, they cared for a total of 243 persons, and their expenditures were \$38,238. These two societies are doing almost nothing along strictly educational lines, and instead are assuming the tasks which belong to their own municipalities.

Of the 19 cities which have not yet complied with the hospital law (8 of them having over 32,000 population), 7 had anti-tuberculosis societies which died of inaction; while 8 have existing societies. Of these latter, 3 do nothing along educational lines and 4 do little. The other, which is quite active, has not urged the erection of a hospital by the city as there is reason to think that a private individual will assist in its establishment. There are, therefore, opportunities for anti-tuberculosis societies to assist in getting municipal hospitals in these cities by adopting active educational methods to arouse public opinion.

Second. Are the private anti-tuberculosis agencies endeavoring to awaken interest in the law requiring cities and towns with more than 10,000 population to establish tuberculosis dispensaries?

Of the 54 cities and towns coming within this law, 31 have not complied with it. (One of these cities has just provided for a dispensary in its budget.) Seven of these 31 cities have more than 32,000 population, and 8 of them have existing anti-tuberculosis organizations. Only one is very active along educational lines. Fifteen of the 31 localities have never had anti-tuberculosis organizations, while 8 have lost them by death.

Of the 23 existing dispensaries, a number are below the minimum standard set by the State Department of Health, in respect to having no evening hour, no medical staff, etc.; 8 are carried on by private anti-tuberculosis agencies, 2 of them in cities already provided with municipal dispensaries. One society is now endeavoring to get the Board of Health to take over the clinic which it has conducted for several years.

Third. Are the anti-tuberculosis societies endeavoring to awaken public interest in the enforcement of the law requiring medical examination of school children, which is required in every city and town in the Commonwealth?

Some of the societies believe that this work is not well done in their communities. No statistics on this point have been gathered by the State Board of Education since June, 1913. At that time, replies from the cities and towns indicated that in a number of localities no physician had been appointed, that where a physician had been appointed not all of the children were examined, and that in many instances the examination was largely confined to the eyes, nose and throat. With few exceptions, the unsatisfactory replies were from small communities. Four of these places have anti-tuberculosis agencies at present. One of the most serious problems in this connection is the entire lack of medical inspection in many of the children's institutions

whose inmates do not attend the public schools. An instance recently came to my attention where three such children, a boy and his two sisters, were found to be affected, two of them being in an advanced stage of the disease when they were removed from the institution. This question of bringing about an adequate medical examination of public school children and other children of school age, and also of instructing them in the cause and prevention of tuberculosis, presents many opportunities for educational work on the part of these societies.

Fourth. Are the societies striving to awaken public interest in the enforcement of the statute requiring cases of tuberculosis to be reported to the local boards of health? Seven organizations believe that the law is not well obeyed, and yet six of these do but little work on educational lines. This measure is so important and the failure to enforce it so often indicates an inactive board of health, that the anti-tuberculosis societies can well afford to undertake an active campaign to interest the public in this direction.

Turning from the state's formal program for controlling tuberculosis, and the part which the anti-tuberculosis societies are taking to educate the public to carry it out, let us consider what work remains to be done by private funds and what agencies are doing it.

1. Instructive and home nursing in tubercular cases:—

Fifteen anti-tuberculosis agencies, some of them in the larger industrial cities, employ nurses to instruct patients in their homes. In some of the cities where this is done the local boards of health already employ one or more nurses for this purpose, so that in these instances the societies supplement what they believe to be inadequate service on the part of the municipality. This visitation and instruction of individual patients is conceded by most of those who have carefully considered the matter to be the duty of the local boards of health. If this view is correct, the societies should not regard their instructive work as a permanent feature, and local boards of health should be urged to take it over as soon as practicable.

Several societies which formerly employed nurses for instructive nursing have adopted this view and have since devoted all their energy to work on educational lines. One newly organized agency plans to employ a nurse for a short time to make an investigation as to whether the community needs a dispensary. This is in accord with the theory that the workers in these agencies should devote themselves to gathering information as to the needs of the community and disseminating such information.

It is even more generally conceded that the anti-tuberculosis societies should not attempt to care for bedridden patients. This is not generally done, though in two cities the instructive nurses are inclined to do more or less home nursing of tubercular patients, instead of turning them over to the local nursing associations,

which are willing and able to care for them. One anti-tuberculosis agency which does not co-operate well with the visiting nursing association in this regard devotes itself wholly to individual work with patients and does nothing on educational lines.

2. Providing tubercular patients with material relief.

At least seven anti-tuberculosis agencies undertake to provide material relief, chiefly in the form of milk, eggs and other food suitable for tubercular patients. In five of their communities there exist societies for organizing charity. Three of these latter agencies are well equipped to handle all relief problems in families where tuberculosis or other sickness or misfortune is the cause of poverty. When an anti-tuberculosis society furnishes relief in a community which supports a well organized associated charities or a relief society, such a step involves not only duplication of work but a departure from the best recognized standards set for private societies in the field of tuberculosis prevention.

It is easy to understand that local conditions or lack of resources in the community have made it necessary for agencies in some instances to maintain a hospital or a dispensary, give instruction in the homes of patients, furnish material relief and find suitable work for patients in whom the disease has been arrested. The important thing is that they should regard these as temporary activities and endeavor to turn them over as soon as possible to some appropriate agency. Only by so doing will they be in a position to enter upon an active campaign of education.

As I conceive it, the work of the private society is to gather information touching the cause and prevention of tuberculosis by studies and other means; to disseminate it as widely as possible; and to interest the public to support necessary legislation.

The societies which are doing the most active educational work employ popular lectures, moving picture films, exhibits in schools, shop windows, etc., leaflets in different languages, popular articles in the press, competitive essays by school children, and all other educational methods which human ingenuity can devise. Ideas presented thus reach a vast number of persons at a stage where suggestions for avoiding the disease may be helpful and before control becomes necessary. This, from the viewpoint of state inspection, should be the work of the private society which enlists in the fight against tuberculosis.

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- ³ R. L. Chap. 84, Sec. 14, amended by Acts 1903, Chap. 402, amended by Act 1913, Chap. 82.
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- ⁵ Acts 1911, Chap. 597; 1912, Chap. 637.
- ⁶ Acts 1911, Chap. 576; 1914, Chap. 408.
- ⁷ Acts 1910, Chap. 257; 1911, Chap. 269.
- ⁸ Acts 1908, Chap. 181.
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- ¹⁰ Three institutions in Boston.

Medical Progress.

A REVIEW OF SOME OF THE RECENT LITERATURE ON PERICECAL BANDS AND ADHESIONS.

BY WILLIAM JASON MIXTER, M.D., BOSTON.

It is safe to say that there are at least three types of adhesions: (1) excessive embryonal fusions, (2) inflammatory and traumatic processes, (3) mixed. During the past two years we find an increasing number of writers who lean toward the embryonic origin of these structures, some of whom are on record in the past as believing them to be largely inflammatory. It seems certain that during fetal life there is a mysterious sort of adhesive peritonitis with a selective action on certain folds of the peritoneum, which accounts for the fixed portions of the intestinal tract (Bryant¹). Just how this process takes place is not known, but if one thinks of the contents of the peritoneum becoming more or less adhesive during the evolution of the colon in fetal life, all the findings would be explained. The whole mesentery of the large intestine becomes adherent, each portion to its own chosen structure except that of the sigmoid. This is a very extensive process and it is easy to see that comparatively slight variations would lead to important anatomical changes. Suppose the process is very active on the ascending colon, Jackson's veil is the result from the dragging over the intestine, by its adhesive property, of a fold of peritoneum, much as one pulls up a blanket on a cold night. If the process runs up on to the mesentery of the lower ileum, the intestine rolls up in its own mesentery and we get a Lane kink. Naturally, different writers show minor differences of opinion, but this seems to be the fundamental idea as expressed by Mayo,² Eastman,³ Summers,⁴ Fallon⁵ and others. The possibilities are endless, and it is easy to see that the resulting abnormalities would at least be very similar to the results of peritoneal infection. It is probable that pericecal membranes are present in at least 15% of children (Albrecht⁶), while Eisendrath and Schnoor⁷ and Fallon⁸ claim that Jackson's veil is a fold which is always present to a greater or lesser extent. They say that the Jonnesco and the Jackson veils are synonymous. The structure is a reduplication or fold of peritoneum constantly found during fetal and post-natal life and varies greatly in vascularity. The upper border is at the hepatic flexure and the lower is usually 1 to 1½ inches above the lower border of the cecum, although in some cases they found it covering the whole cecum and part of the appendix.

Another embryonic process which it is necessary to note in this connection, although it involves the cecum only indirectly, is the Lane kink. The mechanism of this abnormality is much clearer and can be explained as a rolling up of

the terminal ileum in its own mesentery. There may be variations, but this is the fundamental process. Campbell⁹ found the condition present to a greater or less extent in 18% of a series of cadavers.

To take up next the adhesions of infectious or traumatic origin—they are so diverse both as to cause and position that it is only necessary to mention the appendix as the commonest single cause and that their varieties may be endless. A good example of this process is the deformity of the lower ileum caused by appendicitis when that organ lies against its mesentery. The resultant scarring of the peritoneum may draw the terminal ileum downward in such fashion that it almost exactly simulates a Lane kink of embryonic origin. The same may also be true of tubal inflammations. Eastman³ partly differentiates such processes from the congenital type by absence of blood vessels. The main difference is the fact that they are usually, but not always, firm, white, localized bands of bloodless connective tissue. They seldom show any orderly arrangement as the congenital veils do, and may catch any loop of bowel. They are often fine string-like processes. If the omentum is involved, it usually springs straight across to the site of inflammation about the cecum without any intermediate process between it and the ascending colon, as is the case in the congenital type.

It is easy to see that the embryonic process results in strong points of support for the colon throughout nearly its whole extent. If these supports are unduly narrowed at any point or if they draw across the gut, they will cause angulation or constriction of its lumen with resulting stasis after the musculature loses its tone. If there is unusual overloading of the intestinal tract due to loss of habit of defecation or any other cause, the same angulation will occur at points of support which under a lighter load would act properly. Under these circumstances they become danger points, and by causing increasing stasis with its resulting putrefaction give rise to mild grades of colitis and pericecritis.

This brings us to the commonest type of ease seen at operation,—the mixed type. In this, the congenital type acts as a forerunner to the chronic adhesive process of adult life with its persistent low grade infection and its ever-increasing obstruction and stasis, thus forming a vicious circle. Associated with this is the increasing density of the embryonic structures due to the tugging of prolapsing organs or a mild degree of inflammation, as pointed out by Pilcher.¹⁰ When such cases come to operation, it is very difficult to tell where the embryonic process ends and the inflammatory one begins. Luckily this makes comparatively little difference surgically.

We now come to the mobile cecum of Wilms. Here again developmental conditions play a very important rôle. If there is a meso-cecum and ascending meso-colon, the

cecum, being a comparatively heavy blind pouch supported against the abdominal wall in all the animals which do not stand erect, sags down into the pelvis, and the more it sags the more difficulty it has in emptying itself. Hausmann¹⁰ recognized three types: (1) due to a long common mesentery, (2) due to sliding or flaccid slack retrocecal tissue, and (3) due to long mesentery of the ascending colon and hepatic flexure. Case¹¹ and others, while not denying the presence of this condition, say it is not nearly so important as the fixed cecum. Connell¹² found it present in 11 out of 19 operative cases. It is probable that it may also be due to a dilatation and elongation of an originally normal organ by means of constricting bands involving the ascending colon, with resultant stasis. The general feeling among American surgeons seems to be that dilatation of the cecum is of far greater importance than its mobility. Cannon¹³ and others have proved that the cecum is a reservoir which is intended to hold its contents for a considerable time, and if we look to the lower animals we find that those vegetable feeders with enormous ceca have very much less constipation than the carnivora in whom it is rudimentary. That this is due to the type of diet undoubtedly is true, at least in part.

That excessively redundant ceca may cause no trouble was proven in one of my own cases two years ago. The patient, a woman, had an enormous left inguinal hernia. Even when she was lying down, the lower end of the sac was level with the upper edge of the patella. At operation, the cecum was found firmly adherent at the very bottom of the sac, and yet this patient had never been troubled greatly with constipation.

Our last anatomical consideration is the ileocecal valve. Case,¹⁴ Dodd,¹⁵ Baker¹⁶ and others have shown that it is frequently incompetent and that this incompetence is usually associated with stasis in the lower ileum, giving rise to a more or less well defined symptom complex. Case¹⁴ reports it to be present in 17% of all cases. This valve is of great importance in preventing the regurgitation of the cecal contents, which are very rich in bacteria, into the ileum, where bacteria are much less numerous. Naturally this results in putrefaction taking place in an organ which is not suited to it, with resulting absorption of decomposition products. When we look into this matter we find that there is considerable unanimity of opinion as to the fact, but rather less so as to the cause. First on the list comes congenital deformity of the valve itself. This is probably not so common as dilatation of the valve with relative insufficiency due to dilatation of the cecum from obstruction of the colon (Case¹¹). Third comes deformity of the valve from inflammatory conditions, such as adherent appendix, etc., and fourth, pulling on the ileum, withdrawing it from its partial invagination into the cecum and making it incompetent. Thus we have a definite deformity of the valve, usually secondary to some other pro-

cess, but which as a rule is not remedied by the removal of the original cause.

Absolute diagnosis of these varying conditions is difficult and varies somewhat with different authors. I shall not take it up in this paper more than to say that there is a fairly definite symptom complex associated with ileal stasis and that this is the dominating feature. Positive, differential diagnosis can be made only by means of the x-ray, and even that is not always certain.

TREATMENT.

Naturally we find that the treatment recommended by different authors is very variable, but it is possible to reconcile many of these variations when we recognize the underlying condition which each man is proposing to treat. It is absolutely necessary to remember that in this condition each case must be treated according to the findings, and that no hard and fast procedure can ever be successful in all cases. Even where the underlying cause is the same, the resulting pathological processes may be very variable and demand very different treatment. Many cases with quite severe deformities show little or nothing in the way of symptoms, while others, which have marked symptoms, at operation will show an almost normal abdomen.

I cannot hope to cover all the indications for the different operations proposed, but can simply discuss a few of the best known and those which seem to me the most efficient. Medical treatment is often successful in removing symptoms, temporarily at least. Baker¹⁶ advised cutting down the proteids and increasing the carbohydrates. At the same time, green vegetables and fats should be taken freely to increase the bulk and lubricate the stools. As a rule it is necessary to use agar agar and Russian oil and sometimes some form of laxative. The stools should be bulky and evacuation should be thrice daily for a time at least. Bastedo¹⁷ adds to this, as a very important point, the formation of a good habit of defecation. Whipple¹⁸ advocates the use of lactic acid bacilli either by mouth or in the form of enemas.

In the absence of signs or symptoms pointing to some definite lesion, such as Lane's kink, definite obstructing bands, appendicitis, etc., it is probably best to try out medical treatment thoroughly before resorting to operation. We should remember that these people probably have a rather increased tendency to adhesion formation and that any laparotomy, no matter how carefully done, is almost sure to be followed by some adhesions. This fact probably explains, in part at least, the unsatisfactory result in those cases which Price¹⁹ has so aptly termed surgical junk.

Lane may well be called the originator of surgical intervention in this condition. His work is so well known that it is not essential to go into its details here. The three operations for which

he is justly famous are: (1) reduction of Lane's kink, (2) ileo-sigmoidostomy, (3) colectomy. The first of these needs no discussion other than to say that it has been somewhat modified by different operators, notably Coffey,²⁰ who pliates the mesentery on the side away from the kink in order that it may not recur. Ileo-sigmoidostomy has been variously modified. Morris²¹ uses a sharp-bladed crushing clamp inserted through the anus by an assistant, and passed through the walls of sigmoid and ileum by the surgeon. This is left in place two to four days. If safe and efficient, it must indeed be a very rapid method. Montprofit²² sutures both proximal and distal ends of the cut ileum into the sigmoid, the idea being to give better drainage. Dr. Samuel J. Mixer, in a number of cases has sutured cecum to sigmoid or transverse colon to save the ileo-cecal valve, and more recently Eastman²³ has advocated anastomosis of the lowest point of the cecum to the top of the rectum by means of a large Murphy button. As we have seen, it is of great advantage to preserve the ileo-cecal valve; so I should say, if the technical difficulties of Eastman's operation are not too great, that it was the best, as it also completely drains the cecum, which is prone to fill with fecal matter after ileo-sigmoidostomy. This question of backing up in the cecum is very interesting and is due to antiperistaltic waves, which apparently normally occur in the ascending colon in order that the cecal contents may not advance too rapidly.

In regard to colectomy, there have been few changes in technic since Lane described the operation. Naturally any improvement in the technic of the short-circuiting operation can and should be carried out in the other. Lardennois²⁴ has added one point, namely, that the transverse colon is easily dissected away from the back of the omentum by following its line of fusion. In this way, the omentum and its complete blood supply are saved.

The other modifications of the Lane operation are along the line of conservatism, in that only a portion of the large intestine is removed.

Reder²⁵ resects the ascending colon and cecum, and then after doing a lateral anastomosis, ileum to colon, brings the blind end of the ileum out through the abdominal wall, thus leaving a vent which heals within three or four weeks.

Kellogg²⁶ has suggested the formation of an artificial valve where the end-to-side anastomosis is done. Mayo believes colectomy to be seldom necessary, as do Connell,¹² Lardennois,²⁴ Sorrel and others. These writers favor the careful dissection of the constricting bands with plastic repair of denuded areas, and also at times fixation of the intestine to the abdominal wall.

Oppel²⁷ has gone into this matter of reversed peristalsis, particularly after anastomosis, carefully. His conclusions may be epitomized as follows: Never leave a blind pouch without a fistulous opening and if possible never give the fecal stream a chance to go round a loop and

back to the same place. Both of these will result in symptoms of stasis.

Fixation of cecum mobile is advised by Wilms, Hausmann,¹⁶ and Duval.²⁸ The latter splits the peritoneum over the tendon of the psoas parvus and sutures the longitudinal band of the cecum to it. If, as we suppose, dilatation of the cecum is of greater importance than cecum mobile, these operations are to be used only in a small number of cases.

Repair of the ileo-cecal valve by means of several sutures placed in the sero-muscular coats constricting the opening and causing a slight intussusception, has been advised by Kellogg²⁶ and his views are confirmed by Case.¹³ This would seem to be a rational procedure in all cases where the ileo-cecal valve was incompetent. Martin,²⁹ on the other hand, claims that stasis is sometimes due to sphincterismus, and that if this is the case the muscle should be cut, permitting the valve to become more or less incompetent. This at first sight does not appear as rational a surgical procedure, but no decision can be reached until more cases have been done by both methods. Most recent authors agree that restricting bands should be severed and the intestine restored as nearly as possible to its original form whenever this seems to give probability of relief, rather than to do a short-circuiting operation or a colectomy. Emphasis should also be laid on various points of technic, such as little handling, plastic repair of peritoneum wherever possible, complete hemostasis and the elimination of dry gauze from the abdomen. It is a question whether oil introduced at operation does any good. Some authors say it does harm.

It seems to me, on thinking over quite a large number of cases seen as assistant and a small series as operator, that adhesions involving the large intestine are far more prone to recur than those involving the small, and that the dividing of bands causing constriction and angulation, is more important than fixation, and that short circuiting operations and colectomies are of greatest value where there has been a marked hypertrophic process in the large intestine, associated with the adhesion formation.

CONCLUSIONS.

The most important thing in the treatment of these conditions is that each case is a law unto itself and must be judged and treated individually; that probably most of the procedures advocated will be of benefit if used in those cases to which they are adapted; that no single procedure will benefit all, and that there will always be a certain percentage which will be unimproved or even made worse by any operation.

Short-circuiting operations and colectomy may have very far-reaching ill effects in some cases and should be done only after careful thought.

Finally, there seems to be no class of surgery in which the surgeon can use well balanced surgical judgment and common sense to greater advantage.

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Book Reviews.

Cystoscopy and Urethroscopy for General Practitioners. By BRANSFORD LEWIS, B.S., F.A.C.S., Professor of Genito-Urinary Surgery, Medical Department of St. Louis University, St. Louis, Mo., Genito-Urinary Surgeon to St. John's Hospital, etc.; and ERNEST G. MARK, A.B., M.D., F.A.C.S., Professor of Genito-Urinary and Venereal Diseases in the University Medical College, Kansas City, Missouri, etc.; with a chapter by WILLIAM F. BRAASCH, M.D., Attending Physician to the Mayo Clinic, Rochester, Minnesota. With 113 illustrations, 23 of which are printed in colors. Philadelphia: P. Blakiston's Son and Company, 1012 Walnut Street, 1915.

This book is of real value to those interested in the subject matter it contains. It devotes its first seven chapters to as complete and satisfactory a

summary of the history, development and present-day knowledge of cystoscopy as we have seen. The last five chapters, which are devoted to urethroscopy, are equally well treated, and are most timely at this moment, when for the first time in this country the pathology and treatment of urethral conditions are receiving the attention their importance deserves. Paper, type and illustrations are all most excellent, and the publishers as well as the writers are to be congratulated for the good quality of their work.

Pyelography (Pyelo-Ureterography): A Study of the Normal and Pathologic Anatomy of the Renal Pelvis and Ureter. By WILLIAM F. BRAASCH, M.D., Mayo Clinic, Rochester, Minn. Octavo volume of 323 pages, containing 296 pyelograms. Philadelphia and London: W. B. Saunders Company. 1915.

Dr. Braasch's book is chiefly valuable for the large number and the excellent quality of its illustrations, which show the renal pelvis in its normal state, and in a great variety of abnormal and pathological conditions. The material comes from the Mayo Clinic at Rochester, Minnesota, and the pictures, although they are numerous, are still a careful selection from a great mass of work done during the last five years. The text of the book is written in a simple, pleasant fashion, which makes the reading of it easy and at the same time provides a large amount of information in a small number of words. It contains chapters on the history and technic of this comparatively new field of work, and also chapters devoted to a consideration of the normal and abnormal anatomy of the renal pelvis and its many pathological conditions. There is a very complete bibliography of the subject as well as a good index at the end of the book. The publisher's work is well done.

General Medicine. Edited by FRANK BILLINGS, M.S., M.D., and J. H. SALISBURY, A.M., M.D. Series 1915. Chicago: The Year Book Publishers, 1915.

This is the first volume in the practical medicine series of the current year on the past year's progress in medicine and surgery. It consists of a series of chapters on infectious diseases and diseases of the lungs, heart, arteries, blood and hematopoietic organs, ductless glands and kidneys, and metabolic diseases. Each chapter presents the details of the most important advances made in its domain during the past season. The work is illustrated with twenty-four figures in the text and eight special plates and constitutes an excellent epitome of recent progress in general medicine.

An Introduction to the Study of Color Vision.
By J. HERBERT PARSONS, D.Sc., F.R.C.S., Ophthalmic Surgeon, University College Hospital, New York: G. P. Putnam's Sons. 1915.

This is a book on color vision long needed. Most of the vast literature on the subject has been written to advance some theory; facts have been twisted and objections minimized to favor some authors' views.

This work gives a practical summing up of what we know about color vision and its anomalies without prejudice, and a clear and fair discussion of the leading theories of color blindness. So fairly is this done that one cannot gather what theory Mr. Parsons inclines to. Nor is the book a collection of quotations; it is a lucid and detailed exposition of a complicated subject amply illustrated.

This work is divided into three parts: (1) Chief facts of normal color vision; (2) Chief facts of color blindness; (3) Chief theories of color vision.

A Text-Book of Medical Chemistry and Toxicology. By JAMES W. HOLLAND, M.D., Emeritus Professor of Medical Chemistry and Toxicology, Jefferson Medical College, Philadelphia. Fourth Edition, Thoroughly Revised. Philadelphia and London: W. B. Saunders Company. 1915.

The new fourth edition of Holland's work maintains the excellence of typography and illustrations to which we have been accustomed in previous editions. An effort has been made to cover the entire subject of chemistry as it applies to medicine and many of the newer tests have been incorporated, thus bringing the work up to date.

It may be seriously questioned, however, whether such a work fulfills the present needs of the medical student when practically all schools are introducing a premedical year where chemistry is taught more as a science than an appendage to medicine. The short introduction to physics which the author's book also contains is rendered useless by the vastly better instruction which the student obtains in that subject in the preliminary training, now demanded by medical schools for entrance. In other words, such medical chemistries, as they are called, are a relic of the past and have outlived their usefulness. At present physiological, organic chemistry and toxicology are independent subjects which can not be well grouped in one work without doing injustice to one or more of them.

Still as long as all medical schools have not adopted the new requirements, such a table d'hôte course as is offered by books of this class

will be needed and one must confess, in all honesty, that this work is one of the best published. The color reactions are portrayed with unusual vividness and accuracy and the description of reactions are lucid and clear cut. There is an excellent index and as a book of reference much as we use an encyclopaedia for a brief and rapid refreshing of our knowledge of a subject within its scope, the work has a merited place in our libraries.

A Manual of Physiology. By G. N. STEWART. Seventh edition, 1132 pages, 467 figures. New York: William Wood & Co. 1915.

The seventh edition of this excellent manual retains the features which have made earlier editions valuable. Chief among these may be mentioned the exceptionally readable manner in which fundamental experiments are described. The author has been remarkably successful in his discussion of the evidence on which his conclusions are based. The advanced student of physiology, who does not wish to take the time to consult original sources, will find the most significant data in almost any of the important fields of physiology, clearly presented. The new edition differs from previous editions mainly in its chemical aspects. Chemical physiology is advancing very rapidly at the present time and no textbook of physiology can hope to be entirely satisfactory in its chemical material unless subject to frequent revision. The new work along these lines seems to be as fully treated in this manual as in any of its contemporaries. From the standpoint of construction the book is quite satisfactory. Typographical errors and mistakes in indexing, which are often so annoying, are noteworthy by their absence. The figures are excellently selected and well printed.

Evolution and Disease. By J. T. C. NASH, M.D., (Edin.) New York: William Wood & Co. 1915.

This monograph is based on the author's three Chadwick lectures on "The Evolution of Epidemics," delivered in April, 1913. In the present volume the subject material of these lectures is expanded into a series of sixteen chapters tracing successively the steps in the history of disease and its relation to the evolution of civilization from the times of medieval famine and pestilence through the development of bacteriology and sanitation to the present phenomena of war and military medicine in their bearing on the future welfare of mankind. The book closes with a valuable alphabetic bibliography of references. It is an interesting and useful contribution to the philosophy of evolution in the relation of disease and its control to human progress.

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GOLDSMITH AS A PHYSICIAN.

AMONG the famous men of letters whom the medical profession has, with varying degrees of justice, been proud to claim as its members, few, perhaps, have a more charming individual personality, greater genius in writing, and less claim to the distinction of being a physician than Oliver Goldsmith. It has been customary to speak casually of Goldsmith as a doctor, yet the evidence of his medical studies and practice has hitherto hardly seemed to justify his inclusion under that denomination. Indeed, in 1896, Dr. John Morris of Baltimore published in the *Journal of the American Medical Association* (Vol. xxvi, pp. 953-57) a discussion of the question "Was Goldsmith a Physician?" and concludes that "after very faithful research, with an honest hope that I could discover proofs of his having obtained a medical degree, I am constrained to declare that his education did not

fit him for a professional life, or that any university, under the most lax conditions, could have granted him a degree."

Recently, however, at a meeting of the historical section of the Royal Society of Medicine, Sir Ernest Clarke presented in a paper the result of his extensive and painstaking investigations into a multitude of original manuscript sources, as a result of which he seems conclusively to have refuted Dr. Morris's conclusion. It seems definitely disproved that Goldsmith obtained his medical degree at Padua, at Leyden, at Edinburgh or at Louvain. Dr. Clarke has, however, found irrefutable evidence that he did receive such a degree from Trinity College, Dublin, and this evidence he presents in conjunction with a brief sketch of Goldsmith's career.

Oliver Goldsmith was born in Dublin on November 10, 1728, was admitted to Trinity College on June 11, 1745, and received the degree of bachelor of arts on February 27, 1749. Immediately after this he read for orders for a short time and then served for a year as tutor in a gentleman's family of the neighborhood. It then appears that he was desired by his uncle to undertake the study of physic, and to this end he went to Edinburgh, probably in 1752. Several of his letters are preserved from the period of his residence at Edinburgh, and in these he speaks from time to time of his medical studies and teachers, particularly of Mr. Munro, professor of anatomy. "the only great man among them; so that I intend hearing him another winter, and go then to hear Albinus, the great professor at Leyden." The name of Oliver Goldsmith appears twice in the still extant class lists of Professor Alexander Munro, Senior, as having entered the class of anatomy in October, 1752, and again in October, 1753, paying each time a fee of three pounds, three shillings.

As a matter of fact, Goldsmith finally did go to Leyden, and elsewhere on the Continent. In a letter to his uncle, in January, 1754, he says: "After having spent two winters in Edinburgh, I now prepare to go to France the 10th of February: I have seen all that this country can exhibit in the medical way. . . The circle of science, which I have run through before I undertook the study of Physic, is not only useful, but absolutely necessary to the making of a skilful physician. . . I shall spend this spring and summer in Paris, and at the beginning of next winter go to Leyden. The great Albinus is still alive there, and 'twill be proper to go, though

only to have it said we have studied in so famous an University."

After his visit to Leyden came the fascinating chapter of Goldsmith's wanderings, afoot, through France, Switzerland and Italy, and ultimately his return to England in 1756. He reached London in February of that year, in a state of utter destitution, and succeeded, at first with difficulty, in earning a livelihood as assistant to a chemist on Fish Street Hill, near the London monument. Later, through the patronage and friendship of a Dr. Sleigh, he set up in medical practice in Southwark, where he seems to have lived a hand-to-mouth existence under very shabby and precarious circumstances. The *Lancet*, in its issue of March 7, 1914, presents the following sketch of Goldsmith during this period of his career:—

"Reynolds once told an anecdote of the care with which Goldsmith at this time carried his hat so as to hide a patch in his coat. He tried all kinds of other employments, from that of usher to that of printer's reader, but returned as a *pis aller* to the medical profession, for which he had so little gift and for which he was at this time not 'qualified,' as the word is now understood. In December, 1757, he writes to his brother-in-law Hodson that he was making shift to live by a 'very little practice as a physician, and a very little reputation as a poet.' In August, 1758, he wrote three letters to friends in Ireland, begging them to get him subscribers for his forthcoming book, 'On the Present State of Taste and Literature in Europe.' The MS. of one of these letters was reproduced in 1858 by the modern representative of Griffin, Goldsmith's original publisher. It probably has often been torn from the collected edition of Goldsmith printed by Griffin in 1858, and has deceived the unwary collector of autographs. In this letter, which is addressed at great length to Mrs. Lawler, née Contarine, the cousin with whom poor 'Goldie' had been in love in Ireland, he gives an account of his penury, none the less poignant for its tone of persiflage. He intends, he says, to adorn his room with 'maxims of frugality.' 'These,' he continues, 'will make pretty furniture enough and won't be a bit too expensive, for I shall draw them all out with my own hands, and my landlady's daughter shall frame them with the parings of my black waistcoat. Each maxim is to be inscribed on a sheet of clean paper and wrote with my best pen, of which the following will serve as a specimen: 'Look sharp. Mind the mean (*sic*) chance. Money is money now. If you have a thousand pound, you can put your hands by your sides and say you are worth a thousand pounds every day of the year. Take a farthing from an hundred pound, and it will be a hundred pound no longer.' Thus which way soever I turn my eyes they are sure

to meet one of those friendly monitors, and as we are told of an actor who hung his room round with looking-glasses to correct the defects of his person, my apartment shall be furnished in a peculiar manner to correct the errors of my mind.' The sale of his book was to pay for his passage to Coromandel, where, through his friend Milner, he had obtained the position of physician and surgeon to a factory. His practice was to bring him in £1000 per annum, but evidently he was expected to qualify first. He must have been familiar with Smollet's description of an examination at Surgeon's Hall in 'Roderick Random,' but undeterred by this he presented himself before the examiners and was disqualified. The examiners were probably Messrs. Mark Hawkins, Fullagar, Nourse, Girle, Singleton and Roul. The entry in the Royal College of Surgeons 'Examination Book,' under date Dec. 21st, 1758, states that before a Court of Examiners, held at the theatre, James Johnson was 'appointed apprentice to Mr. Carson, Thomas Meggs qualified for surgeon to a regiment, James Bernard Mate to an hospital, Oliver Goldsmith, found not qualified for Do.'"

With this failure before the Royal College of Surgeons Goldsmith's medical career in London came to an end and the Coromandel venture failed also to materialize. Goldsmith's movements during the ensuing years are, to a great degree, uncertain, but in the diary of Bishop Percy (editor of the *Reliques*) are memoranda of his meeting Johnson and Goldsmith at Oxford in February, 1769, and under the date, February 18, "On this occasion Dr. Goldsmith was admitted as *cundem gradum*, which he said was M.B." From this it would appear that Goldsmith actually received a medical degree from Oxford and that he had previously received one from some other medical college. With the assistance of Sir William Osler, Dr. Clarke now proceeded to search the files of the local newspapers and was rewarded by finding at last, in the issue of Jackson's *Oxford Journal* for Saturday, February 18, 1769, the following conclusive item:—

"Yesterday Oliver Goldsmith, Esqr., Bachelor of Physick in the University of Dublin, author of *The Traveller a Poem*, of the *Present State of Polite Learning in Europe*, and of several other learned and ingenious performances, was admitted in Congregation to the same Degree in this University."

It appears certain, therefore, that Goldsmith must have received his medical degree in Dublin at some time between 1756 and 1763, probably in 1761, since shortly after this date appears his first signature in an agreement with

his publisher as Oliver Goldsmith, M.B. The *ad eundem* degree granted him at Oxford was doubtless given rather for his distinction in letters than in medicine.

In the discussion of Sir Ernest Clarke's paper Mr. D'Arcy Power presented the following clinical data with reference to the cause of Dr. Goldsmith's death: "Goldsmith had long been troubled with symptoms of renal disease, and as early as 1770 to 1771 he had spent some time at Bath, probably for the cure of a 'gouty kidney.' In 1773 he was suffering again from dysuria, but he improved under treatment, and in March, 1774, he went to a farmhouse at Hyde, near Handon. Here he was taken ill on March 25, becoming feverish and having a fresh attack of dysuria. He seemed so weak and his pulse was so bad that his apothecary became frightened and sent for further advice. A little improvement took place, but the patient persisted in dosing himself with James's powder—a preparation of antimony which he had himself recommended in 'Little Goody Two Shoes.' At midnight on Sunday, April 3, he was in a sound and calm sleep, but his condition clearly caused anxiety, because 'the gentleman who attended him' was on the alert, and at 4 p.m. he was found to be in strong convulsions, which continued without intermission until his death at 4.45 p.m. on April 4, 1774. The report of the case has been submitted to Dr. Philip Hamill, the medical pathologist at St. Bartholomew's Hospital, who replied that the symptoms strongly suggested a *baillus coli* septicemia from an old pyelitis, complicated by excess of antimony in the James's powder. From our knowledge of Goldsmith's manner of life, however, it would seem more likely that his terminal condition was one of uremia.

Goldsmith is buried near the old round church of the middle temple in London, and it has recently been proposed to set up near by a replica of the statue of him which stands with that of Edmund Burke at the gateway of Trinity College, Dublin. The final discovery, after this admirable piece of research in medical history, that Goldsmith's medical degree was genuinely obtained from his *alma mater*, should stimulate interest in this project among physicians of all English speaking countries, since the renown which he attained in the field of letters may now justly be held to extend some of its distinction to the medical profession, of which Goldsmith was truly a member.

PROPORTION OF MENTAL DEFECTIVES AMONG DELINQUENTS.

We have been hearing very much in recent years of the relationship of mental defectiveness to delinquency. Some enthusiasts in this work have been making sweeping and positive statements concerning the very great frequency of mental defectiveness among delinquents. In fact, from some quarters the impression has been spread broadcast that most delinquents about the age of puberty and adolescence are feeble-minded more or less. Those who have not directly dealt with these delinquents, however, have suggested that these statements were exaggerated. No reliable studies seemed to be forthcoming concerning the real proportion of mental defectives among delinquents. Recently, however, a careful study of the proportion of mental defectives among delinquents has been made by a careful worker in this field.

Augusta F. Bronner of the Psychopathic Institute of the Juvenile Court of Chicago, presents such a report as a result of special research work with this single object in view (*Journal of American Institute of Criminal Law and Criminology*, November, 1914). Most of the studies that have appeared up to date cannot be accepted as giving accurate or reliable information. The percentage of feeble-minded among offenders has been ranged so high (even as high as 89%) because some of the following factors have been neglected: Only the caught offender has been considered in most cases. The majority of the data have been based upon the study of those institutions (reformatories and state industrial schools). Those who were not caught and those who were paroled were not considered. Thus the figures for such a highly selected group of offenders are no criterion for offenders in general. Furthermore, the fact has been lost sight of that examination of adolescents and adults by the Binet-Simon tests alone is unsatisfactory for several reasons. These tests are unreliable for the ages above ten years; the co-operation of the examiner must be obtained and this is by no means always easy; the attitude of the examiner may not be such as to gain the confidence of the subject, especially if the examiner himself is much hurried; the examinee's reactions may be considerably influenced by his emotional condition, particularly if he knows that he is to appear shortly before the judge. Furthermore, when it comes to court work, such important factors as defective vision,

defective hearing, mental dulness from physical illness and the pernicious effects of bad habits are likely to be overlooked. In addition, the language factor is a very important one, since the individual may be unable to understand the test or to explain himself properly.

Miss Bronner's research was carried on at the Psychopathic Institute of the Juvenile Court of Cook County, where she probably had to deal with a much less selected group of offenders than can be found elsewhere, her group consisting of first offenders as well as recidivists, and those brought to court on complaint of parents in addition to those caught in delinquency. For the purposes of her research she examined 505 cases of delinquent boys and girls in the Detention Home. She made certain that these children were not to appear in court on the day of the examination, and that they did not know that the examination had any reference to their trials. She took the further precaution to see to it that all the tests were made by the same individual, and in every case allowed sufficient time for the establishment of a feeling of friendliness before the tests were started.

In order that a boy or girl should be classed as normal, he or she had to be so regarded by the physician, the probation officer and the teacher, the child must have reached at least the sixth grade, there must have been no retardation, and the individual had to be able to do fairly advanced school work. These requirements were demanded in order that chances of error could be excluded. Furthermore, in doubtful cases, the Binet tests were employed. In cases where language proved to be a great factor, other tests not involving language were supplemented. In this way the investigation was scientific and the child was being given a square deal. As a result of these tests, the percentage of feeble-minded was found to be less than ten, while the group of those normal in ability was found to exceed ninety per cent.



WORK OF THE MASSACHUSETTS ANTI-TUBERCULOSIS LEAGUE.

As the principal publication in this week's issue of the JOURNAL we are pleased to present the proceedings and principal papers of the first annual meeting and conference of the Massachusetts Anti-Tuberculosis League held in this city on Thursday, April 1, 1915. This new organization is intended to coördinate the work of

local anti-tuberculosis societies throughout the state, and by its annual meeting to encourage the report of investigation and progress and the dissemination of knowledge of methods in dealing with tuberculosis in the community.

Among the original papers presented, especial attention should be called to those of Dr. Allan J. McLaughlin, Dr. John B. Hawes, and Dr. Walter G. Phippen on the situation in regard to the new local tuberculosis hospitals and dispensaries. At the time these papers were presented a large number of the communities coming under the provisions of the act of 1911 had failed to take steps to establish such institutions as required by this law. Since that time, however, as has been noted in current issues of the JOURNAL, various of these cities and towns have undertaken compliance with the regulation and it is expected that by September 1, all will have done so.

Mr. Arthur Drinkwater, the treasurer of the Association, reported a balance of \$1,277.56 in its finances, chiefly derived from the sale of Red Cross Christmas seals. Owing to the generosity of the Boston Society for the Relief and Control of Tuberculosis, the expenses of the Massachusetts Anti-Tuberculosis League for this year have been comparatively light. Mr. Drinkwater pointed out that the League, if adequately financed can be of great service to the state and to local anti-tuberculosis associations; but that individual support will be necessary if the opportunities for service afforded by the League are to be adequately employed. The following officers of the association were elected for the ensuing year:—

President, Vincent Y. Bowditch, M.D., Boston; vice-presidents, Walter P. Bowers, M.D., Clinton; James C. Coffey, Worcester; Rev. William B. Geoghegan, New Bedford; John H. Gifford, M.D., Fall River; Mrs. Joshua Hale, Newburyport; Miss Louise P. Loring, Beverly; Allan J. McLaughlin, M.D., Boston; George L. Sebadt, M.D., Springfield; secretary, Seymour H. Stone, 4 Joy Street, Boston; treasurer, Arthur Drinkwater, Cambridge; executive committee, Roger I. Lee, M.D., Boston, chairman.

The secretary of the League, Mr. Seymour H. Stone, reported that the League now represents thirty-four anti-tuberculosis associations throughout the state. The important future possibilities of the work of this organization are hardly to be over-estimated, and it is a pleasure to record in the JOURNAL this first earnest of its purposes and aims of service.

THE CONQUEST OF TYPHUS IN SERBIA.

THE JOURNAL has the unique and valuable privilege of publishing, in another column of this week's issue, a series of extracts from private letters of Dr. Richard P. Strong, written during the period of his service in Serbia in charge of the sanitary commission for the eradication of typhus fever. These extracts are chronologically arranged and present in the form of a diary letter an intimate and first hand personal record of Dr. Strong's work. In a recent issue of one of the Boston daily papers there appeared similar extracts from a diary kept by Dr. Strong, which presented, however, other aspects of the work from those shown in these letters. Referring in this diary to a trip of inspection Dr. Strong writes as follows of his experience in traveling by handcar from Fer-
osoviez to Uskub:—

"We started at 4 a.m., but after we had been running an hour one of the iron thwarts in the wooden handlebar of the handcar suddenly broke. Happily we were running down hill and the car kept on going until we reached the next station. Here we found a blacksmith and within an hour he had welded the broken parts together."

After his return to Nish from this tour of inspection he writes also as follows in the diary with reference to his methods of disinfection:—

"I am glad to say that my transportable disinfesting and bathing plants have just been finished and will be sent to Uskub tomorrow for use. Such a plant consists of a car which contains a boiler for generating steam; a second car, formerly a refrigerating car, which is practically a huge autoclave, and into which the steam is turned for the disinfection of clothes, and a third car in which there are 15 shower baths.

"The individuals are to have their hair lipped, be bathed and their clothes disinfected by steam while they are bathing. Their clothes will be ready after the bath. Before they clothe themselves they are sprayed with petroleum; several thousand persons can be bathed and disinfected in a day by this means and the cars can be moved from city to city. I used to utilize ars with steam disinfection in Manchuria."

The work done by Dr. Strong and his associates, in the prompt control and eradication of typhus fever in Serbia, is thus far the greatest medical service of the present war and is comparable with the work of Reed on yellow fever in Cuba, of Gorgas in Panama, and of Dr. Strong himself on pneumonic plague in Manchuria. By his achievement, not only was relief brought to a nation menaced by a terrible

epidemic scourge, but the extension of that epidemic to other countries and peoples, with its consequent incalculable potentialities of suffering and loss of life, was prevented, a triumph of medical science in time of war.

EYE INJURIES IN WARFARE.

SOME of the most distressing wounds which have been reported from the European arena of war are those of the orbit. Not only are these peculiarly painful when inflicted, but they result usually in a much more serious disability than the average wound. It seems that those received by bullets which are wholly or partly "spent" prove to be more serious than those where the initial velocity of the projectile has not been modified. The most serious ocular injuries of all are those received as a result of enfilading fire, where both orbits are pierced transversely. Eyelid injuries are also common, and in these the lids usually become so edematous that sutures cannot be applied.

Sympathetic ophthalmitis has practically been abolished as a result probably of the early diagnosis and treatment of injured eyes, the application of the principles of asepsis and the prompt enucleation of ruptured globes. Students of medical history will recall that this affection was extremely prevalent during our Civil War, occurring in about 16% of all eye injuries.

The penetration of the eyeball by small foreign bodies is a very common occurrence and often gives more trouble in treatment than what are apparently more serious injuries. The body is usually a fragment of the steel or cupronickel coat of a bullet, although it often happens that dirt and gravel are driven through the choroid by the explosion of a shell. There are two main difficulties in the treatment of such cases. First the intruder must be located, and this is sometimes almost impossible to do definitely, even though two or three skiagraphs are taken, the foreign body being too small to cast an appreciable x-ray shadow. Even after the particle is located it may not be feasible to remove it intact, owing to its friability, and sometimes when it is removed there is found to remain another foreign body whose existence had not been suspected. Many such fragments, too, are non-magnetic and hence cannot be removed by the electromagnet.

MEDICAL NOTES.

AMENDMENT OF THE HARRISON LAW.—Report from Washington, D. C., states that on July 30 the federal regulations under the Harrison narcotic law were so changed as to permit the registration of osteopathic practitioners to administer narcotic drugs in those states in which they are admitted to register as physicians.

DECLINE IN PRICE OF RADIUM.—In another column of this issue of the JOURNAL we note a further recent advance in the cost of various drugs and their preparations. Strangely enough, advice from London on July 20 states that the price of radium has declined during the past year about \$1000 a gram, apparently because the war has forced some holders of limited quantities to sell at a loss. Meantime in America the experimental station of the United States Bureau of Mines in California has succeeded in producing radium from carnotite ores at a cost of only \$36,000 a gram, a rate greatly lower than that of the European products which have ranged in price from \$120,000. to \$160,000 a gram.

Feeble-mindedness in Ohio and Indiana.—The recently published eleventh bulletin of the Massachusetts State Board of Insanity for July, 1915, calls attention as follows to the status of feeble-mindedness in Ohio and Indiana: "In a publication of the Ohio Board of Administration, under date of March, 1915, the feeble-minded problem in Ohio is discussed. Ohio estimates 10,000 to 15,000 feeble-minded in that state, with the state taking care of only 2000 in institutions, or less than 20%, although some of the others are in reformatories and other institutions. The mental examination of delinquents in the Girls' and Boys' Industrial School and Home reveals startling results. Of 100 girls examined, 59 were feeble-minded, 14 borderline cases, 13 mentally retarded, and only 14 of normal mentality. Investigations among adults have shown that over 50% of prostitutes, 25% of reformatory and penitentiary inmates, and probably 75% of infirmary inmates are feeble-minded.

"The Indiana State School for feeble-minded Fort Wayne, is filled to its capacity and has on the waiting list more than 50 who cannot be accommodated. Dr. George S. Bliss, Fort Wayne, the superintendent, recommends that the state purchase a new farm of one or two thousand acres, to be used in conjunction with the one at present in use. The new farm is needed especially for adult females."

PREVALENCE OF MENINGITIS, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for July 23, 1915, notes that during the month of June in that year eight cases of cerebrospinal meningitis were reported in Wisconsin

and five in Maryland. During the same month there were three cases of poliomyelitis in Maryland and fifty-six of smallpox in Wisconsin. There were ninety-four cases of typhoid fever in Maryland, sixty-two in New Jersey and forty-three in Wisconsin.

SMALLPOX VACCINE AND TETANUS.—Dr. John F. Anderson, in a recent issue of the *Bulletin of the United States Public Health Service* records his experiments to disprove the validity of the often quoted statement that inoculation for smallpox may ultimately result in tetanus. An experiment of charging smallpox vaccine with tetanus spores and inoculation with it of monkey and guinea-pigs failed to elicit any case of tetanus. In turning to statistics Dr. Anderson found that during the given period the manufacturers had sold for use about 40,000,000 individual doses, of which 32,000,000 were not returned, presumably having been used. Inasmuch as the number of authentic cases of tetanus following inoculation for smallpox was 41, it would show that about one in a million of the persons vaccinated developed tetanus. In the army and navy, during the nine years ending with 1913 there were vaccinated 360,000 soldiers and 225,000 sailors, with corresponding figure of tetanus infection of six and two. The two cases occurring in the navy were found to follow, one a railroad injury and the other wound. Dr. Anderson's conclusion, therefore, is that tetanus occurring fifteen to twenty days after vaccination does not take its infection from the virus, and there can be no demonstrable connection between smallpox vaccine and tetanus. That the vaccination wound may be the point of entry of the tetanus germ is not disputed, but the possibility of keeping the wound clean is obvious.

EYE, EAR, NOSE AND THROAT HOSPITAL, NEW ORLEANS, LA.—The Eye, Ear, Nose and Throat Hospital of New Orleans, La., which treats only those too poor to pay for medical advice, states in a recently issued report, that during the year 1914 it received 8136 patients, 3333 in the eye department, 4750 in the ear, nose and throat department and 53 dermatological cases; 18 operations were performed. A total of 4,796,000 units of diphtheria antitoxin were dispensed to 638 patients, which was an increase of more than 1,000,000 units over the year 1913.

EUROPEAN WAR NOTES.

SERBIAN SANITARY COMMISSION.—It is announced that Dr. Harry Plotz and Dr. George G. Bohrer, of the Mt. Sinai Hospital, New York recently sailed from that city aboard the Greek steamer *Themistocles* to join Dr. Richard J. Strong at Nish, taking with them a complete bacteriologic outfit for use of the Serbian sanitary commission.

WITHDRAWAL OF AMERICAN RED CROSS UNITS.—In last week's issue of the JOURNAL we published a statement announcing the intended withdrawal of American Red Cross units from Europe on Oct. 1. The following further statement recently issued by Miss Louisa P. Loring, Red Cross emergency secretary for Massachusetts, indicates, however, that Red Cross relief work in Europe will not be wholly suspended:—
 "Since the report was printed that the Red Cross was to withdraw its personnel from Europe by Oct. 1, there apparently has been a misunderstanding on the part of some persons who take it for granted that the Red Cross work for Europe would then be finished. On the contrary, the Red Cross will continue to send supplies, but the units of surgeons and nurses are to be withdrawn, as the following letter received from Miss Boardman clearly explains:—

'Dear Miss Loring—After a year's service in Europe the American Red Cross has considered advisable to withdraw our personnel with the exception of those in Belgium, who have been there only about six months. On Oct. 1 we would have to change many of our surgeons and nurses, if not all of them, as their tours of duty could be up. To bring those we have in Europe home and to send out substitutes would cost a total of perhaps \$70,000, and then we should not be able, with our present funds, to maintain these units in Europe but two or three months longer than Oct. 1. For this reason it has seemed advisable to utilize what money we have left in finding the necessary supplies to Europe and aiding the Red Cross societies there by contributions of funds. We have notified the governments long in advance, to give them ample time to take over the hospitals which our personnel have occupied. Yours, etc.,'

'Mabel T. Boardman, Acting Chairman.'

"Much as it regrets this necessity, the society realizes that no Red Cross of a neutral country before rendered so long and extensive service in the way of personnel to nations engaged in war."

"The sanitary work in Serbia will continue."

ANNUAL REPORT OF AMERICAN RED CROSS.— July 29 the American Red Cross published in New York an annual report dealing with the first year of its war activities in Europe:—

"Since hostilities began, the American Red Cross has spent \$1,460,306 for relief of suffering due to the war, leaving on hand a balance of 74,818. Never in history has a Red Cross organization rendered so great a service to the peoples of other countries. Every country engaged in the war is represented in the expenditure of the great fund."

The personnel now in Europe totals 71 surgeons and 253 nurses, and of these all but about 10 surgeons and twenty-four nurses will be called not later than Oct. 1 next.

The financial statement covering the year's work is as follows:—

RECEIPTS.

Contributions	\$1,560,124
Special for Serbian Agricultural Relief Committee	10,000
Special for the Rockefeller Foundation for the Sanitary Commission.....	65,000
Total	\$1,635,124

(The Rockefeller Foundation also contributed \$20,000 additional directly to the Commission in Serbia.)

EXPENDITURES.

Cash remitted.....	\$423,882
Designated contributions.....	8217,182
Undesignated contributions	206,700
Salaries of surgeons and nurses... 216,018	
Travel and maintenance of personnel; transportation of supplies on land and sea, including freight, drayage, expressage, lighterage, pilotage, etc.....	148,472
War insurance.....	10,138
Equipments and outfitts.....	36,298
Supplies purchased.....	354,630
Appropriated for pensions for the widows of two American Red Cross doctors who died of typhus while on duty in Serbia.....	15,000
Miscellaneous	2,375
Sanitary Commission—Appropriated for transportation, equipment, supplies, salaries and maintenance	105,000
Designated contributions to be remitted	8,493
Salaries and maintenance for three months additional and return of personnel (estimated).....	140,000
	1,460,306
Balance.....	\$ 174,818

The report also includes an itemized list of all the articles shipped to Europe by the American Red Cross, a list in which are hundreds of articles having to do with medicine, surgery, sanitation, and other phases of Red Cross work.

Bandages	1,900,000
Antiseptic tablets.....	1,150,000
Cotton, pounds.....	892,670
Hospital garments.....	211,688
Surgical dressings and pads.....	1,106,516
Sulphur, pounds.....	358,982
Clothing for refugees (garments).....	209,903
Gauze, yards.....	1,062,251
Anesthetics, pounds.....	31,191
Adhesive plaster, rolls.....	11,345
Handkerchiefs	22,412
Pillows	22,400
Blankets	13,876
Antitoxin, cases.....	71
Alcohol, gallons	1,034
Cholera vaccine, doses.....	12,200
Hospital linens, articles.....	49,548
Mufflers	29,341
Smallpox vaccines, tubes.....	10,000
Soda, pounds	20,000
Slings	19,810
Criocline, yards	67,415

The list includes, it is stated, supplies purchased and donated, designated as well as undesignated, but does not include supplies still waiting shipment to the warehouses of the Red Cross."

CONDUCT OF BRITISH ARMY MEDICAL SERVICE.—In a dispatch dated June 15, and published in the *London Gazette* on July 10, Sir John French commented in the following terms of commendation on the conduct of the British Army Medical Service at the front:—

"I have much pleasure in again expressing my warm appreciation of the admirable manner in which all branches of the Medical Services now in the field, under the direction of Surgeon-General Sir Arthur Sloggett, have met and dealt with the many difficult situations resulting from the operations during the last two months,

"The medical units at the front were frequently exposed to the enemy's fire, and many casualties occurred amongst the officers of the regimental medical service. At all times the officers, non-commissioned officers and men, and nurses carried out their duties with fearless bravery and great devotion to the welfare of the sick and wounded.

"The evacuation of casualties from the front to the base and to England was expeditiously accomplished by the administrative medical staffs at the front and on the lines of communication. All ranks employed in units of evacuation and in base hospitals have shown the highest skill and untiring zeal and energy in alleviating the condition of those who passed through their hands.

"The whole organization of the Medical Services reflects the highest credit on all concerned."

HIGH DEATH RATE AMONG BRITISH WOUNDED.—In the issue of the *Lancet* for July 17 the following comment is made on the relatively high death rate prevailing among British wounded in the war:—

"The fact, related in Parliament by Mr. Asquith, that the proportion of deaths among our wounded amounts to nearly 24% has naturally caused a painful impression. We have already pointed out that the percentage of deaths during the Crimean War was only 22, and this in spite of the appalling insanitary conditions which then prevailed. This proportion was reduced to 20% during the Boer War, but 44 years ago, during the Franco-Prussian War, the Germans lost only 17.53% of their wounded. The introduction of aseptic and anti-septic surgery and the great progress generally accomplished since then, made it only reasonable to expect an even greater saving of human life.

"But in spite of the figures quoted by Mr. Asquith in the House, the anticipated improvement has taken place; given conditions similar to those that prevailed in 1870-71, we may confidently say that the percentage of deaths is less now than then. But conditions generally are utterly different today. The trench fighting results in a much larger number of injuries due to shells and shrapnel. Wounds from rifle bul-

lets are comparatively rare, and when they do occur the body is so sheltered by the trenches that it is generally the head which is hit, and the probability of fatal results is consequently much greater. But by far the most terrible feature of the present war is the fact that in so many cases it is absolutely impossible to bring timely help to the wounded. The trenches face each other at very short distances. An attack is delivered, and the mass of the wounded fall on the unsheltered space between the trenches. When the struggle is over this space is carefully watched, and the slightest movement brings a volley from rifles or machine-guns. At night only, when favored by darkness, some of the wounded may be able to crawl back to their trenches. It is the cruel fact that aid reaches the wounded very late, if at all, that accounts chiefly for the high death-rate. It has been suggested that women dressed in some very conspicuous manner might be employed for this purpose, for there would be no possibility of mistaking their pacific purpose. If we could once more fight in the open, where the entire body, instead of merely the head, would be exposed; if the rifle bullet resumed its ascendancy; and if, further, it was possible to relieve all the wounded as soon as the battle was over, we should then doubtless find that the percentage of recoveries among the wounded was in keeping with what we are entitled to expect from the advance in surgical science.

"Especially will this be the case if operations can be performed and absolute rest and full treatment be given for a sufficient length of time close to the battlefield in cases of abdominal and other wounds that are dangerously aggravated by traveling. This, we understand, is now actually done, though perhaps, there is room for some improvement in the shape of more extensive accommodation near the front.

"A greater number of portable tent hospitals will be required, particularly when the armies begin to move. Railway head lines for ambulance trains may not be so conveniently near as at present. Certainly there is an extensive network of railways in the countries over which the armies now in Flanders are likely to move. But the army that retreats will naturally destroy the rails and blow up the bridges whenever possible, and there may even be a scarcity of houses remaining that might serve as temporary hospitals. Battles will probably be fought long before the lines of communication can be repaired. The present facilities for promptly disposing of the wounded by sending them to the base hospitals cannot always be maintained.

"It will not go on forever, and now is the time to prepare for the very different condition that will prevail when we are once again able to carry out rapid movements. Tent hospital that can be dismantled, packed in carts or railway trucks, conveyed in any direction and put up again in a few hours are likely to be especially useful."

BOSTON AND NEW ENGLAND.

NEW ENGLAND ALUMNI ASSOCIATION OF THE GRADUATES OF JEFFERSON MEDICAL COLLEGE OF PHILADELPHIA.—The tenth annual meeting of the New England Association of the Alumni of the Jefferson Medical College of Philadelphia was held at Rocky Point, Rhode Island, July 28. Nearly 100 members were present. An elaborate banquet, arranged by the Rhode Island delegation, was served. Addresses were made by the following: John T. Farrell, Providence, R. I., subject, "Roentgenology"; Wm. H. Green, Class 1864, "Advance in Surgery in the U. S. Navy in the Last 50 Years"; T. F. Fitzmaurice, Lewiston, Me., subject, "Status of the Present Day Surgery of the Eye, Ear, Nose and Throat"; Charles A. Riley, Boston (Tufts College Instructor), subject, "Pulmonary Tuberculosis and Its Proper Treatment: Dietetic, Sanatorial, etc."

Short addresses were made by Drs. P. F. Gahm, Medford, Mass.; E. R. Storrs of Hartford, Conn.; Wallace P. MacCallum of Boston, and Gustave Hartman of Lynn, Mass.

The retiring president, Dr. P. F. Gahm of Medford, Mass., moved for the election of officers. The following were chosen:

President for 1916, Dr. Thos. F. Fitzmaurice of Lewiston, Me.; vice-president for 1916, Dr. E. R. Storrs, Hartford, Conn.; treasurer for 1916, Dr. Frank I. Payne, Westerly, R. I.; secretary for 1916, Dr. Wallace P. MacCallum, 214 Huntington Avenue, Boston, Mass.

The next meeting will probably be held at Hartford, Conn.

WORK OF BOSTON MILK AND BABY HYGIENE ASSOCIATION.—A recently published report by Dr. J. Herbert Young, medical director of the Boston Milk and Baby Hygiene Association, states that of 372 babies under the care of that organization during the fortnight ended July 7, only 28, or 7 per cent., failed to show a gain in weight. "During the past thirteen weeks there have been only two deaths of babies registered with the twelve milk stations of the Milk and Baby Hygiene Association, against nine deaths for the corresponding weeks last year, although the number of babies under supervision twenty per cent. more than the number under last year. This month 342 new babies came under the care of our doctors and nurses. The number cared for during 1915 to date is 3438."

RECENT CONNECTICUT LEGISLATION.—The recently published seventh bulletin of the Massachusetts State Board of Insanity for July, 1915, calls attention to recent legislation in Connecticut relative to the local care of the feeble-minded. The Legislature of Connecticut has recently passed a law changing the name of the Connecticut School for Imbeciles to the Connecticut Training School for the Feeble-minded, and has

authorized the construction of buildings for said school on the property of the state in the town of Mansfield.

The act states that the Board of Trustees of the Connecticut Colony for Epileptics shall appoint three of their number and the Connecticut Training School for the Feeble-minded shall appoint three of their number, to constitute a commission to locate a site for the erection of buildings suitable for the conduct of said training school, to be near the Colony for Epileptics at Mansfield.

THE APPOINTMENT OF A BOSTON HEALTH COMMISSIONER.—In the issues of the JOURNAL for May 13, June 10, July 1 and July 29 we have published statements alternately confirming and denying the acceptance by Dr. Richard H. Creel, of the United States Public Health Service, of the appointment as health commissioner of the City of Boston. On July 28 it was finally and definitely announced that Dr. Creel has declined this appointment on account of his health. On July 30 it was announced that the position of Boston Health Commissioner has been offered to Dr. Francis X. Mahoney, the present chairman of the health board, and that he has accepted it.

In the original plan for the reorganization of the board of health there was provision for seven departments. This number has now been reduced to five by the transfer of the local quarantine station to the national government, and of the division of child hygiene to the school department. Dr. William J. Gallivan, chief of this division, has resigned and the determination of his successor has not been made. The appointment of the five new department heads, to be known as deputy commissioners, rests with Dr. Mahoney under the approval of the mayor.

Obituary

CHARLES PARKER HOOKER, M.D.

DR. CHARLES PARKER HOOKER, who died of acute myocardial insufficiency with angina, on July 21, at Fortune Rock, near Biddeford, Me., had been for many years a leading medical practitioner in Springfield, Mass., an intensely active man who shortened his life by unfaltering devotion to duty. He was a native of Springfield, born there on September 18, 1855, the son of a physician, Dr. John Hooker, one of the well-known local practitioners of his day.

After obtaining his early education in the public schools of Springfield, Dr. Hooker entered the Harvard Medical School, from which he received the degree of M.D. in 1879. He immediately settled in practice at Springfield, where his success was early and permanent. In 1855 he was appointed county physician and held this

position until March, 1915. An obituary notice of Dr. Hooker, which appeared in a recent issue of the *Springfield Republican*, speaks as follows of his hospital service and associations in that city and of his personal characteristics:

"Dr. Hooker served as a visiting physician of the Springfield Hospital during his practice here and was associated with that institution before it was established in its present location. At the recent dedication of the Dr. Frederick Wilcox Chapin memorial building at the Springfield Hospital he paid appreciative and understanding tribute to Dr. Chapin. He was also a visiting physician on the Mercy Hospital staff for two years after the opening of that institution, but retired to give more time to the Springfield Hospital.

"Dr. Hooker was so vital a personality that his departure will be a shock. He was greatly interested in all that concerned the city of which he was a native, and whose life he entered into with the enthusiasm that was characteristic of all he did. While not conspicuously robust, he was what men call 'wiry'. His interest in his profession led him to overwork, and recognition of the need for rest now and then showed that he was overdoing his strength, but it was not known how near the danger line he had come. His going is a loss to Springfield."

Miscellany.

ADVANCE IN COST OF DRUGS.

In the issue of the JOURNAL for July 29 (Vol. lxxiii, p. 183) we published an extended statement detailing the rise in the price of various drugs which has occurred as a result, directly or indirectly, of the European War. Recent report from New York again announces further advance in the cost of several groups of pharmaceutical preparations notably the coal tar products:

"Perhaps the most extraordinary development in the drug and chemical markets today has been the advantage taken of the pressing needs of domestic and foreign consumers of such coal tar products as carbolic acid, cresylie acid, picric acid, benzoate of soda, benzoic acid, salicylic acid and salicylate of soda, antipyrine, acetanilid, acetphenenetidin, cresol, hydroquinone, naphthaline, myrrane oil, artificial musk, synthetic wintergreen (or methyl salicylate), artificial almond and mustard oils, camurin, thymol, vanillin and phenolphthalein. All local handlers of the above goods are asking substantial premiums over the prices in effect here a week or ten days ago and are asking much higher prices for the goods when it is known they are intended for export than when known to be for home consumption. Sellers insist that purchasers sign contracts guaranteeing that the goods are being taken

solely for home consumption and are not to leave the country.

Manufacturers of caffeine now find themselves practically unable to supply demand owing to the continued call from export sources which has absorbed the bulk of their offerings. Cost of production is also on the increase, owing to the sharp advance in price of tea and coffee from which caffeine is extracted. Prices in this market have consequently risen to a basis of \$7.25 @ \$8 per pound for the alkaloid and \$4.25 @ \$4.50 per pound for the citrated. A few manufacturers are attempting to keep their prices down to \$6.50 for the alkaloid and \$3.35 @ \$3.40 per pound for the citrated.

"Quinine salts rule comparatively strong in the local market on the basis of 30 cents per ounce, although outside lots of German and Java salts can be picked up here as low as 29½ cents per ounce. The imports of cinchona bark from Java and Europe were comparatively small in the first eleven months of the current fiscal year, having totalled 3,436,381 pounds, against 3,250,881 pounds in 1914, while the imports of quinine sulphate and all alkaloids or salts for which quinine can be compounded during the eleven months under review totalled 1,826,53 ounces, against 2,578,185 ounces in the corresponding period a year ago and 3,069,206 ounces in 1913. The demand from domestic and foreign consumers is particularly active and bid fair to continue so for some months to come.

The demand for opium from domestic consumers has fallen to negligible proportions, and a further accumulation of spot stock has resulted. Sellers now quote on the basis of \$7.25 for the gum in eases, while holding the powdered and granular grades for \$8.05 @ \$8.1 and \$8.15 @ \$8.20 per pound, respectively. Rumors that the Turkish government has imposed an embargo on the narcotic persist, but still lack confirmation. A feature in connection with the opium situation was the publication of statistics this week showing that the stock of opium in United States bonded warehouses at the end of May this year stood at 104,668 pounds of the value of \$483,320, comparing with only 20,000 pounds of the value of \$73,434 on the corresponding date a year ago. Opium in bond at the port of Boston on June 30 is reported to have amounted to 217 pounds, valued at \$1137, compared with the same quantity having the same value on the corresponding date a year ago."

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Aug. 3 1915, are as follows: Diphtheria, 37, of which 9 were non-residents; scarlatina, 21, of which 3 were non-residents; typhoid fever, 8, of which 1 was non-resident; measles, 43, of which 3 were non-residents; tuberculosis, 42, of which 2 were non-residents. The death-rate of the reported deaths for the week was 14.76.

LARREY AT THE BATTLE OF WATERLOO.

In the issue of the *British Medical Journal* for June 19 appears the following item about the relations of Larrey and Napoleon after the latter's return from Elba, and of Larrey's experience at the battle of Waterloo.

"When Napoleon returned from Elba in 1815 he almost at once sent for Larrey and discussed with him the organization of the ambulances for the forthcoming campaign. But Larrey was made aware that he was to be replaced by Percy as Surgeon-in-Chief of the Grande Armée, and determined to leave the service. Napoleon, however, coaxed him into giving up this intention, and on June 10 he accompanied the Emperor to Belgium. At Ligny it became evident that a mistake had been made in putting Percy in the place of Larrey. Usually before a battle Larrey visited all the places near likely to be suitable for the reception of the wounded, and made all necessary preparations. His experience enabled him to estimate with approximate accuracy the probable number of men who would need attention. Percy, who was exhausted by the fatigues of much campaigning, and who suffered from heart disease besides, was unable to do this. But Larrey himself admits that the best organized ambulance service would have broken down after Waterloo. The surgeons did their best, often under fire and exposed to charges of cavalry. Larrey's chief ambulance was close to the farm of the Belle Alliance, but, as usual, he went about the whole field. While trying to bring off his wounded he received two sabre cuts, one on the head, the other on the shoulder, from a Prussian lancer. He was left for dead on the field, but recovering consciousness tried to make his way to the frontier. When he had reached the banks of the Sambre, and sought himself in safety he was again surrounded by a corps of Prussian cavalry and taken prisoner. They burned the headquarters ambulance at Caillou, where the French wounded had been left. Larrey, who was held in high esteem by the King of Prussia, and who was well known to many German officers, was stripped of his clothes, robbed of his money, his watch, a ring given to him as a talisman by a dying Mameluke after the battle of the Pyramids, a sabre presented to him at Abukir by Napoleon, and even his boots. His hands were tied, and thus, half-naked, bleeding from wounds torn open by the rough treatment to which he had been subjected, he was taken to the general commanding the advance guard. In stature he was almost the same as the Emperor, and he wore a grey overcoat over his uniform; these things, together with the sabre on which the name of Buonaparte was engraved, made the Russians believe that Napoleon had fallen into their hands. To the commandant, Larrey, who spoke a little German, explained who he was

and how the name of Buonaparte came to be on the sabre. Hesitating, but not convinced, that officer sent him on to the general commanding the division. That officer knew the Emperor, but, irritated by the mistake, would listen to no explanations, and ordered Larrey to be shot. Fortunately, a military surgeon, who went to blindfold him as he was standing before the firing squad, recognized Larrey and insisted that the execution should be put off. After some difficulty Larrey was brought before Blücher, whose son he had saved when wounded and a prisoner in 1813. The old soldier apologized, ordered that Larrey's clothes and money should be restored to him, invited him to dinner, and promised to let Madame Larrey know that her husband was safe. He was allowed to go to Louvain, where the municipality and the inhabitants gave him a most flattering welcome. The population of Belgium showed the most practical sympathy with the French wounded. They picked up those who were on the field and conveyed them to the hospitals of Brussels and Louvain. Larrey, as soon as his wounds had healed, asked to have charge of the French wounded in the hospitals of Louvain, and went to Brussels to acquaint himself with the situation of those collected in that town. He found that in many of the hospitals the French wounded were mingled with those of other nations, and that the sight of Prussians lying beside them put them into a state of fury. Every day there were violent scenes in the wards and murderous quarrels took place, a state of things not favorable to cure. Larrey got his fellow countrymen separated from the Prussians and placed together in the military hospital at Brussels. Having operated in a number of difficult cases he went back to Louvain and thence to France, where he arrived on Aug. 15. He found that Blücher had kept his promise and informed his wife that he was safe."

This chapter of adventures sounds almost too romantic to be true, yet it may probably be paralleled by the experiences of individuals in the present war, when these come to be narrated. Doubtless, many Napoleonic tales have been considerably heightened by the imagination, a custom common among good story-tellers.

Correspondence.

WORK OF THE SERBIAN SANITARY COMMISSION.

We are enabled to give the following extracts from diary letters of Dr. R. P. Strong to his sister. They were written with no idea of publication, recounting simply the progress and details of his work day by day. These extracts are made as of special medical interest. Much of the deepest interest must be left out for reasons not hard to guess.

He arrived in Nish April 22nd, and found the first work to be done was the organization of a general health board which could supervise and unify work throughout the country.

"April 25th. . . . The present board as it stands consists of Prince Alexander, President; Sir Ralph Paget, Vice President, the chiefs of the French, British, Russian and American commissions, the chiefs of the Serbian Military and Civil Medical Department and a representative from the parliament, with Dr. R. P. Strong, Medical Director.

The rest of the session was occupied in outlining a sanitary campaign.

The first meeting of a group of men which includes a number of different nationalities is always a difficult one, but the results have been as satisfactory as I could hope for. Of course, it is not ideal to have such a large board, but when there are so many different commissions you can see it is absolutely necessary for them to have some representation.

In the late afternoon we moved into our house and are really comparatively comfortable. I do not think there is such a thing as a bath tub in any of the houses in Nish. You can imagine what a relief it is to get into a room that you can feel is not infested with insects. . . .

April 26th. . . . This morning began with another session of the Board of Health at 8.30. We concluded the organization of the Board and divided Serbia into fourteen sanitary districts: The English, French and Russian commissions are to have seven of these and America is to have the other seven, the southern half, or new Serbia. The British have been assigned the military districts with the army, and the French the northern ones. The Board of Health will, of course, control the situation in all the districts; but it is obvious to all that it would not be advisable to have English, French and American doctors working in the same Serbian town; that there would be obvious differences of opinion among the subordinates in regard to the work. I expect to travel all through Serbia and make inspections, and if the work is not going on correctly, then it can be corrected through the Central Board of Health.

I received a telegram from Dr. Jackson that he and Dr. Zinsser had arrived at Salonika, and that the remainder of the party was expected tomorrow. I have instructed him to wire me as soon as all the supplies are landed and the rest of the party arrive, and then to proceed to Skopje. At that vicinity there has, according to reports, been an increase recently in the amount of typhus and I shall therefore employ the work of the commission there first. We have no very accurate knowledge of the amount of typhus in Serbia at the present time. There is a record of the number of cases in the hospitals, but none of the amount of the disease among the civil population and this amount must be very large. By the institution of house to house inspection we shall soon be able to find out something in regard to this in the towns. The Russians have charge of Nish but they have only four doctors for house to house inspection.

April 27th. . . . My third important visit today was to His Royal Highness Crown Prince Alexander.

. . . As the Prince is leaving tonight he remained in his train, which was standing on the side track near the station. . . . After the usual greetings we talked of the sanitary conditions in Serbia. He asked me what I thought of the cholera serum and I gave him my views on the subject, saying I did not think the cholera serum for the treatment of cholera was of very great benefit, but that cholera vaccine had shown itself to be of sufficiently great value to warrant its general employment in a country like Serbia. He asked if I had had any experience in its use, and I gave him results of the work which I carried out in the Philippines with cholera vaccine. He wanted to know something regarding the statistics, and I told him that in towns where we vaccinated one half the population in order to see the effect of the vaccine, the number of cases in the unvaccinated was six times as great as in the vaccinated sections. This method of vaccination was one I devised in Germany in 1903, you may remember, and it is the method

we shall use here in Serbia: that is, we shall use as much of it as I can obtain. It requires only a single inoculation and there is very little local reaction. These are its chief advantages. Its disadvantage is that it is much more difficult to prepare than the old cholera vaccine; but when it is made in a well equipped commercial laboratory this is not the most important factor.

He asked me if I thought that typhus was more dangerous and more difficult to control than cholera, and I told him I thought it was; but that I believed the typhus epidemic could be controlled with proper sanitary measures. . . .

April 28th. Nish. . . . My entire day was spent in an inspection trip. We left here in a motor at 7.40 a. m. I was agreeably surprised at the roads. We were able to run about thirty miles an hour most of the time. In some places the roads were quite bad and we had to go slowly for a few yards. The ride gave me an opportunity to see the country, which is really beautiful and very fertile. There were a great many fruit trees in bloom. Nearly all the land is cultivated; for, as you know, every peasant owns his own land and there are here plenty of sheep and pigs to be seen. Only the women were working in the fields, practically all of the men being in the army.

. . . One sees Austrian prisoners in all these towns. They seem to be allowed to wander about a good deal at will, and generally they appear contented and do not wish to return to fight. . . .

April 29th. . . . Skopje. . . . According to the statistics in the military hospitals here there were 749 cases of typhus yesterday but here also we do not know the condition of the civil population. . . . Immediately after lunch I started out to find buildings I could use for disinfecting plants. I visited everything I could see with a smoke stack in the hope I could find some place where steam could be generated for disinfection, but was unsuccessful. . . . In the evening I dined with the Pagets and some of the members of their hospital staff. Lady Paget came in just as we were sitting down, propped up in her chair with pillows, accompanied by her nurse. She looks worn and as you know, is convalescing from typhus. She has certainly set as heroic an example as a woman could well do in an epidemic of this kind. She was here when conditions were at their worst and went among the dead and picked out cases of typhus still living and had them carried to her hospital. It was in this way she contracted typhus. . . . She has certainly done magnificent work here. There are 450 cases in her hospital now. . . .

May 1st. . . . I went through the entire Paget Hospital and spent some time examining the typhus cases. A feature, of which almost no mention is made in our text books of medicine regarding typhus, is the occurrence of gangrene of the toes and sometimes about the nose and mouth. Another striking feature is the condition of the pharynx, a swollen appearance of the mucous membrane being observed in many instances in the early stages of the disease. In fact, the mouth requires frequent cleansing with disinfectants. This is another fact which seems to suggest that the virus may sometimes be thrown out into the air into the immediate vicinity of the patient. The nurses working in the hospital are carefully protected by their uniforms and they all wear rubber gloves. I understand they have one piece garments made together with the stockings and over these they wear high boots. It is difficult to see how some of them could become infected with these uniforms. Lady Page wore such a uniform whenever she went near cases yet she became infected, as did others of the staff of the hospital. . . . There are many Austrian prisoners working about the premises and they have been, I am informed, of the greatest help and assistance. Many of them have had typhus in the hospital itself. I have had the problem staring me in the face since I came here of bathing, disinfecting and steriliz-

ing the clothes of at least three or four thousand people daily, and having their clothes dried for them so they could put them on after their bath. In some of the other towns there have been facilities which could be employed for such a purpose. Thus, in Nish, a brick factory has been employed, the steam being turned into two large iron cylinders in which the clothes were placed. These cylinders were formerly employed for drying the bricks. Here I can find nothing to aid me of this nature. I think I can bring refrigerating cars here and run steam into them as I did at Manchuria. Also, there are no bathing facilities here. . . . Of course, it would be much simpler if we had clean clothing to give the natives after their bath, but we have none and there is no use in disinfecting the individuals unless we disinfect their clothes at the same time. . . .

May 2nd. . . . I understand the motor will arrive tomorrow and I shall certainly need it to visit the surrounding villages. I have had reports today that the epidemic is raging, particularly at Stip and at Pristina just now; that the patients are lying on the floors of various buildings, there being no beds for them and no doctors there. Tonight I must leave for Nish to be at the Board of Health meeting tomorrow. The following day I shall return here and then try to visit Stip immediately. I still have the Montenegro situation staring me in the face. . . .

(The diary May 2nd to May 12th has never been received.

May 12th. En route to Belgrade. . . . At the beginning of the war Serbia had 400,000 men in the army. She now has 200,000, over 100,000 having died from typhus. At the beginning of the war there were 360 doctors in all Serbia and 121 of these have died. This leaves 239 Serbian doctors for the entire population, which amounts, as you know, to about 5,000,000. So you can see that, with much disease in the land and such unsanitary conditions, we need every doctor we can get. . . . Eventually, when the new American contingent arrives, I think we shall have in the neighborhood of 250 foreign doctors. . . . Am dictating on the train. . . . The country we are passing through looks something like that in France. In the southern part of Serbia one sees now whole fields of wild red poppies and other fields of cultivated poppies. These grow taller than the uncultivated and the flowers are either purple or white. The fruit trees are also in bloom in the southern part of Serbia. In the country we are passing through now there are no poppies. One sees just green hillsides.

May 12th continued. Belgrade. . . . Dr. Ryan met me at the station and came on to the hotel with me. One sees in all the principal streets evidences of the destruction caused by the bombardment; huge holes torn in the sides of many of the public buildings and residences. The Austrians fire a few shells over each day and the Serbians reply with a few. We heard a few during the course of the day and I saw one burst in the air. I have been told that one struck and killed two of the horses in one of the carriages that was sent to the station for our party. As Dr. Ryan stayed to lunch with me at the hotel the rumor reached the hospital that we had been in this carriage and had been killed. The people at the hospital were much relieved, of course, to learn that such was not the case. Dr. Ryan has the best hospital building in Serbia. . . . We all have every reason to be proud of the way this hospital is run and of all Dr. Ryan's good work there, particularly admiring his remaining here after having had typhus fever and again taking up his work. . . .

May 14th. Kragujevac. . . . We then went to see Mrs. Stovarts' field hospital. This is in tents and situated on the outskirts of the town. As it had been raining for three days and most of the tents had no floors, only a thick piece of canvas serving as a floor in some of them, you can imagine the camp was in a very muddy condition. Mrs. Stovarts received us in rubber boots and trousers. She apologized for being without her skirt. All her assistants are women

doctors and nurses. The rest of the day was spent in inspecting Serbian hospitals. One of these had 1000 beds for typhus.

May 29th. Skopje. . . . Yesterday I spent on an inspection trip to Velez and Stip. I went by train from here to Velez, taking the motor on the train with me, and from Velez motoring to Stip in a little over two hours. . . . I have no doctor available to send to Stip at the present time but will send one as soon as new doctors arrive. I reached Velez a little after two in the afternoon and the chauffeur ran the car out on the edge of the town where I had lunch, consisting of a tin of sardines and some crackers. It was the first I had eaten that day because I left too early to get breakfast. . . . Although I have no doctor to send to either Velez or Stip, I am trying to make as many inspection trips as possible before my new men come, in order to know just where to place them. . . . The disinfecting plant made from railway wagons has arrived, and I have found a desirable place to put it. This afternoon we shall bathe the people and disinfect their clothes at the same time. I am going to erect two large tents now, one for them to undress in and the other for them to dress in. . . . A thorough disinfection of hospitals is being carried out in another part of the town, and at the dispensary a large number of women, children and men are being attended. I think I told you that hitherto no provision has been made for the treatment of women and children, as all the doctors have been employed for the army. . . .

May 30th. Nish. . . . In my notes of yesterday I told you I was going to put up a tent for the men to undress in before bathing. . . . It was something of a feat to put up such a large tent, but with the assistance of Mr. Brink, who is very capable in field work, it was done.

The men undressed in the tent as we planned, passed in a line carrying their clothes to the steam sterilizing car and then to the shower baths. From the shower baths they passed to another car where they were sprayed with petroleum and received their sterilized clothes. Of course, it is needless to say that many of them were infested with lice. The clipping of the hair will be a regular proceeding hereafter. Some of the men said that they had not had a bath for over ten months. They seemed glad to be able to bathe, and some of the Austrian prisoners also asked to be allowed to bathe. This, of course, they were allowed to do after the Serbian soldiers had been looked after. . . .

June 4th. Nish. . . . I met yesterday two women whose work I admire very much, one an American, Miss Simmons, from the Roosevelt Hospital in New York, and the other Miss Sandes, an English nurse. These women have been doing perfectly splendid work here in Serbia at Valuejo. Both of them had typhus there, but insisted in going on with their work afterwards." . . .

The following extracts were from a letter of Dr. Strong's to Miss Mabel Boardman of the Red Cross. It will be published in the "Red Cross Magazine" and should be read in full. The letter describes Dr. Strong's visit to several towns in Montenegro. Miss Boardman has kindly authorized this brief extract.

"My party consisted of Mr. Brink, Sanitary Inspector, a Serbian gendarme and my interpreter. We rode into Peč at 5.00 a. m., having been in the saddle or on foot for fourteen hours. My gendarme made a sorry appearance as we rode in to the village. It had rained all night and we were drenched. By half past six we had found and gotten up the doctor, and I went immediately to inspect the hospital. Here I found conditions in a dreadful and very alarming state. On entering the hospital I saw in the first room through which we had to pass, many piles of clothing which had been removed from the typhus cases. These lay on the floor and crawling over these and upon the door in the vicinity were literally thousands of lice. I had never seen so many before—even in Serbia.

The hospital had about 250 cases of typhus. They were all badly neglected. The wards themselves were in a dreadful condition. There were no disinfectants and no means of bathing the patients, and no clean clothes or bedding for them. The condition of the latrines was beyond description. Unless strenuous measures are immediately taken here typhus will probably rapidly spread and another general epidemic result as happened in Serbia. I have arranged to disinfect the hospitals here, the patients and their clothes.

We shall place the troops that are now in barracks in tents while we are disinfecting their former quarters, clothes and bedding. I have also supplied clean clothing and night shirts for all the patients in the hospital and have quarantined Pech."

RICHARD P. STRONG,

BOSTON PARK SHOWS.

BOSTON, July 28, 1915.

Mr. Editor: A new educational method has been introduced with success this summer in Boston. The problem of how to reach a large number of the population who seldom read, if they read at all, has been met with considerable success by what may be called "teaching for fun."

A committee was formed composed of representatives of the Anti-Tuberculosis Society, the Boston Y. M. C. A. and Y. M. C. U., the Women's Municipal League, the Massachusetts Child Labor Committee, the Milk and Baby Hygiene Association, the Massachusetts Society for the Prevention of Cruelty to Animals, and the Poster Campaign Committee of the Associated Charities. These societies, united by their common interest in civic betterment and public health, co-operated in organizing and supporting the following plan: each society subscribed \$25 and guaranteed another \$25, if necessary, to meet the expenses. An active executive committee was formed, and a program of moving picture shows, with phonographic music, was laid out. The show was to be given five evenings in each week for a period of six weeks or more in the pleasure parks in different parts of the city.

A program committee obtained interesting pictures and selected moving picture films which were hired, and the program was varied each night. The committee secured the co-operation of some of the city departments, such as the Park Commission, and from private firms obtained the use of a phonograph and records, as well as an automobile truck to transport the whole show. It was necessary to hire an operator and a manager who obtained the necessary permissions and who saw that everything was ready and in place and all immediate arrangements made. The program was carefully arranged to give entertainment, and every third or fourth film or picture was educational.

It was estimated that during the first ten nights 60,000 people saw these shows, which began at 8.15 p.m. and lasted about two hours. Most of the people remained to see the entire performance and showed great enthusiasm at certain pictures, such as the weighing of a baby at a milk station.

The possibilities of public education appear to be very great through this form of entertainment. Since ignorance of hygiene and public health matters is one of the greatest difficulties which the physician meets today, we commend this form of education to the attention of the medical profession.

Very truly yours,

A. B. EMMONS, 26, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING JULY 31, 1915.

CONTRIBUTIONS.

Washington County (Ark.) Medical Society,	
Fayetteville, Ark.,	\$14.00
Dr. J. F. Pressley, San Francisco, Cal.,	5.00
Receipts for the week ending July 31,	\$ 19.00
Previously reported receipts,	7750.84
Total receipts,	\$7769.84
Previously reported disbursements:	
1625 standard boxes of food @ \$2.20.,	\$3575.00
1274 standard boxes of food @ \$2.30.,	2930.20
353 standard boxes of food @ \$2.28.,	804.84
Total disbursements,	\$7310.04
Balance	\$ 450.80
F. F. SIMPSON, M.D., Treasurer, 7048 Jenkins Arcade Bldg., Pittsburgh, Pa.	

SOCIETY NOTICE.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The twenty-fifth annual session of the New York and New England Association Railway Surgeons, celebrating the quarter century anniversary of the organization of the association, will be held at Hotel Astor, New York City, October 21, 1915, under the presidency of Dr. W. H. Marcy, of Buffalo, N. Y.

A very interesting and attractive program has been arranged. Railway surgeons, attorneys and officials, and all members of the medical profession are cordially invited to attend.

GEORGE CHAFFEE, M.D., Corresponding Secretary,
338 45th Street, Brooklyn, N. Y.

APPOINTMENTS.

BOSTON STATE HOSPITAL—Dr. E. H. Cohoon has been appointed by the Boston State Hospital Trustees as administrator of the Psychopathic Hospital. For the past eight years he has been connected with the Rhode Island State Hospital.

COLUMBIA UNIVERSITY.—Dr. Frederick Tilney, of Brooklyn, has been appointed professor of neurology at the New York College of Physicians and Surgeons, in succession to Dr. M. Allen Starr, who recently resigned.

MCGILL UNIVERSITY.—The following recent appointments are announced in the medical faculty. Assistant professor of chemistry, Dr. F. W. Skirrow; assistant professor of physiology, Dr. J. A. Gray; associate professor in pathology, Dr. Horst Oertel; assistant lecturer in physiology, Dr. T. P. Shaw; lecturers in immunology, Drs. J. C. Meakins and Fraser B. Gurd; lecturer in hygiene, Dr. R. St. J. Macdonald; lecturer in biology, Dr. F. S. Jackson, and associate professor of physics, Dr. L. V. King.

RECENT DEATHS.

DR. HENRY K. EWING, who died on July 30 at East Bridgewater, Mass., was born at Bentonport, Iowa, in 1869. For several years he had been in practice at East Bridgewater and was resident physician at the Millet Sanatorium. He is survived by his widow and by one daughter.

DR. DAVID STRETT, who died on July 30 at Baltimore, was born in Hartford County, Md., in 1854. After obtaining his preliminary education at Bethel Academy he received the degree of M.D. from the Baltimore College of Physicians and Surgeons. For the past thirty-five years he had been dean of the latter institution and professor of the principles and practice of medicine at the University of Maryland Medical School. He was formerly a trustee of the Baltimore Medical College and of the Maryland General Hospital and president of the Baltimore Medical and Surgical Society.

The Boston Medical and Surgical Journal

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Address.

THE PRESENT STATUS OF THE ANTI-TUBERCULOSIS WORK IN NEW HAMPSHIRE AND SOME SUGGESTIONS FOR THE FUTURE.*

BY ROBERT B. KERR, M.D., CONCORD, N. H.

Physician in Charge, Pembroke Sanatorium; Chairman of Committee Appointed by the New Hampshire Medical Society to investigate the extent of Tuberculosis in New Hampshire and make recommendations for legislative relief.

1.

THE TUBERCULOSIS PROBLEM IN NEW HAMPSHIRE.

(1) Tuberculosis is the most prevalent disease in New Hampshire and at the same time one of the most preventable.

(2) It causes more than 38% of all the deaths between the ages of 20 and 30 in New Hampshire.

(3) A conservative estimate places the economic loss to our state from tuberculosis as close on to a million dollars a year.

(4) (a) Eighty-four per cent. of all the deaths from tuberculosis in New Hampshire occur in the southern and central counties.

(b) More than one-half of all the deaths from tuberculosis in New Hampshire occur in Hillsborough and Merrimac counties.

* Read in symposium on Tuberculosis, before the Merrimac County Medical Society, April 13, 1915.

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(c) More than one-third of all the deaths from tuberculosis in New Hampshire occur in Manchester, Nashua and Concord

(d) More than one-fifth of all the deaths in New Hampshire from tuberculosis occur in Manchester.

The great prevalence of tuberculosis in these sections of the state is due in part to the fact that more than two-thirds of the population of the state lies below Concord and also because of the overcrowding due to the large manufacturing industries. It is in the large, and even to a surprising degree in the small manufacturing districts, that we find the Great White Plague claiming its largest number of victims.

(5) Up to May, 1914, there were close on to 2000 active cases reported to the state board of health. In estimating the probable number of cases of tuberculosis in a given territory some authorities, taking 20 as a factor, multiply the number of deaths by that, and so figure the number of cases. More conservative authorities, particularly Philip of Edinburgh, use 10 as a factor. This figure was used as a factor by the Massachusetts Legislative Tuberculosis Commission in figuring the number of cases of tuberculosis in Massachusetts. Taking 10 as a factor and multiplying the number of deaths from tuberculosis in 1911 in New Hampshire by that, we have a little over 5000 cases of tuberculosis in our state.

(6) The State Board of Vital Statistics reports a marked decrease in the mortality from tuberculosis in this State.

The New Hampshire State Board of Health in commenting upon this urges the establishment of

sanatoria to maintain this decrease, believing that "this reduction has taken place among the so-called better classes, or in other words, among the more prosperous, and perhaps more intelligent part of the community. It is these people who are more informed and who pay more attention to sanitary progress, and who, moreover, have the means at their command to enable them to do so. To reduce tuberculosis to its lowest terms sanatoria become a necessity.

(7) Tuberculosis is very largely a disease of the poor in New Hampshire, particularly among the shoe-shop and mill operative part of the population. The housewives and housekeepers are also very prone to this disease. The spread of this disease has been proven to be largely a matter of family contagion in the over-crowded unsanitary homes of the very poor.

2.

OUR AIM IN THE CAMPAIGN AGAINST TUBERCULOSIS.

The aim in the campaign against tuberculosis is the *control* and ultimate *suppression of the disease*. All over the world and the United States a vigorous campaign is under way to accomplish this end. To control and suppress tuberculosis requires:—

- (1) Control of the tuberculous.
- (2) Prevention of new cases.
- (3) Education of the people.

1. *Control of the Tuberculous.* A comprehensive plan for the control and suppression of tuberculosis must reach every consumptive in every stage of the disease and provide proper supervision in a sanatorium, hospital, or the home. This is our ultimate aim: only in so far as we accomplish this shall we stamp out this disease. It is not enough to care for a few consumptives—we must reach all or necessarily while we are caring for the few the great number of unsupervised ones will spread the infection. Every consumptive must be rendered innocuous—only as we do this will tuberculosis be eradicated from New Hampshire. The consumptive is the source of the infection. Any reasonable and comprehensive plan for the suppression of the disease must begin with him.

The time is not far distant when every uncared for, unsupervised consumptive will be regarded as a disgrace to the medical profession as well as to the community at large.

When we realize that there are 4000-5000 cases in the state we can see the magnitude of the problem and the immense amount of work which must be done to accomplish the fulfillment of our ultimate aim. However, this should cause no one to assume a do-nothing attitude, but rather spur us on to do our share, utilizing every proper agency at hand for the eradication of the Great White Plague. It can, must and will be accomplished. Pasteur has said that it is in the power of man to cause all germ diseases to disappear from the face of the earth. There is

no reason why tuberculosis cannot be controlled and suppressed just the same as we control and suppress other germ diseases.

In studying the development of the anti-tuberculosis work we find certain definite stages in the tuberculosis movement. The first stage we find to be the establishment by states of sanatoria for the treatment of favorable cases. These were concerned mainly with the cure of "cases." Soon after it was realized that the advanced cases were a greater menace and a greater burden to the state, and the conclusion was reached that in the proper care of these cases the safety of the public health of the community would be most largely secured.

So we have the second stage of the tuberculosis movement. This stage has been characterized by a vigorous movement for the establishment of local and county institutions for the care of advanced toxic cases. New York has made plans for the establishment of hospitals for these cases by every county, in spite of the fact that it has a considerable number of institutions scattered all over the state.

Massachusetts, although it has four large state sanatoria, has passed a law requiring the establishment of hospitals for advanced consumptives by cities of 10,000 inhabitants or over.

We are at the present time in the midst of this important stage of development of the forces in combat against tuberculosis.

The third stage of development and the one which is the connecting link in our campaign, is the movement for the establishment of dispensaries with their great possibilities of early diagnosis and their corps of nurses for home supervision of cases that have returned from sanatoria and of patients who will not go to a sanatorium. Through the tuberculosis dispensary nurses or a state-wide system of visiting tuberculosis nurses we can provide in any corner of the state, however remote, free medical supervision for every indigent consumptive and his family. In this way we can hope to reach every consumptive, and only as we accomplish this shall we get the best results in our campaign.

The efficiency of this system lies in the close relationship between the dispensary-sanatorium and hospital, so that every indigent consumptive in the state and his family cannot only receive treatment at home in the home, but sanatorium and hospital treatment as well; and what is quite as important, is followed up and kept under observation or treatment upon his discharge from the sanatorium or hospital.

Supervision of all consumptives means the expenditure of a vast amount of hard earnest work; large amounts of money; enlargement of our present institutions; establishment of new local institutions in those parts of the state where most needed for the advanced unfavorable cases; and a comprehensive scheme of home supervision.

To do all this now would in the end be economy. If we fail of this aim, we shall not do our

full duty in the war against the Great White Plague.

2. *The second important feature is the prevention of new cases.* We must stop manufacturing consumptives or else we shall have new and larger crops to deal with in the coming years. To this end in the first place we must isolate the foci of infection; second, we must remove those conditions which tend to foster and breed tuberculosis. We must do away with the "lung blocks"—the overerowded unsanitary homes of the poor. We must make working conditions sanitary. We must prevent over-work. Child labor must be suppressed and woman labor restricted. We must raise the standard of living by paying reasonable wages for reasonable hours of labor.

3. *The third important factor is the education of the people in right living and in the prevention of tuberculosis.*

The people must be taught the lesson of personal hygiene,—that drunkenness is not only the curse of the home but the curse of the body as well, and a most active ally of the tubercle bacillus.

The public must be educated to seek the doctor early when suspicious symptoms present themselves. They must be made to appreciate that the tubercular member of the family, for his own sake as well as theirs, must be sent to the sanatorium or hospital.

They must be taught the need of examination of other members of the family exposed to the infection, so that, if it is found necessary, the disease may be treated in its incipiency.

They must be educated so that they will be willing to send the tubercular child away for treatment, and not as now, let unreasoning paternal love stand in the way, preferring a dead child in the home to a live one in the sanatorium.

I know of no better way to accomplish all this than by a good system of visiting nurses. The District Nursing Associations in Concord and Manchester are of great value in this particular direction.

3.

THE FORCES AT WORK AND THEIR EQUIPMENT.

1. *Laws relating to the prevention of tuberculosis in New Hampshire.*

We have our registration law, requiring the registration at the State Board of Health of every known or suspected case of tuberculosis. We have our anti-spitting laws. We have a law requiring that every death or removal of a consumptive be reported to the board of health and the premises fumigated.

2. *Institutions.*

(a) We have our excellent State Sanatorium at Glencliff, New Hampshire, located high in the

mountains, designed primarily for the treatment of favorable cases. It has a well equipped plant and has beds for sixty patients. It has done and is doing splendid service in saving the lives of many consumptives. It plans to reject all unfavorable advanced cases, but has accepted many moderately advanced cases because there were not enough applications of incipient cases to fill it to its capacity. This is true of the majority of institutions for incipient cases. It is unfortunate that far too many consumptives are not diagnosed until they become moderately advanced. The only question for admission is not whether the case is incipient or advanced, but whether the patient offers a resonable prospect of improvement or cure. It does admit advanced cases when they present such a resonable prospect of improvement or cure.

(b) Under the provisions of a bill passed in 1911 and 1913, which appropriated \$20,000 a year for two years in 1911 and in 1913 appropriated \$15,000 a year for two years, a large number of advanced cases have been cared for at the Pembroke Sanatorium and the Tuberculosis Ward at the Hillsborough County Hospital at Grasmere. About twenty-six state patients can be cared for at any one time under this appropriation. The Tuberculosis Committee of the New Hampshire Medical Society prepared two bills, making provision for advanced consumptives for presentation to this present legislature; one provided for the establishment of a state hospital sanatorium, to be located near the centers of population and designed for the treatment of advanced cases; the other asked for an appropriation of \$50,000 a year for two years for the treatment of these cases.

We were advised by the powers that be that the first bill would be absolutely killed because of the poor condition of the state's finances. The second bill had many advantages and had two objects in view: First, to provide treatment for a goodly number of the state's unfavorable advanced cases; second, to stimulate the establishment of local institutions by charitable people in parts of the state where such institutions were most needed.

This latter bill has passed the House, with the amount of the appropriation asked for cut to \$17,500 a year for two years.* We were told that there was no question of the need of the work or of the merits of the bill, but the state had to cut down on its appropriations.

If the whole amount asked for had been appropriated, both objects of this bill would have been secured. It is easily seen that besides only providing treatment for about thirty-two advanced cases at any one time, it will not encourage the establishment of new local hospitals for advanced cases. No one institution hoped or expected to be able to care for enough patients to use up the \$50,000 a year—the idea was to secure provision for the large number of ad-

* The Senate has since increased the appropriation to \$20,000 a year—the House has concurred and the bill signed by the Governor.

vanced cases in urgent need of treatment and at the same time encourage the establishment of new local institutions so that the unfavorable cases might be cared for near their homes and family. Thus the patient could be frequently seen by his family, get the necessary nursing care, and a focus of infection be removed from the home.

3. *Organizations.*

The State Board of Health, the New Hampshire Red Cross Society, the tuberculosis committee of the Concord Charity Organization Society, and other organizations, are doing considerable work in educating the public. The New Hampshire Red Cross Society and the New Hampshire Federation of Women's Clubs have contributed funds for the treatment of patients at Glencliff and Pembroke. The district nursing associations and school nurses are doing excellent work in supervising cases in the homes and providing examinations for individuals presenting suspicious symptoms. In this way, especially in Concord, a number of early cases undoubtedly due to family contagion, have been brought to light.

4.

EQUIPMENT WHICH IS LACKING.

1. *Laws.*

A valuable addition to our equipment would be the enactment of a law empowering the State Board of Health or local boards of health to remove to a sanatorium or hospital a consumptive whom they deemed dangerous to the public health, either through inability to secure proper preventive measures at home or through carelessness or indifference on the part of the patient in regard to the prevention of spread of his infection.

2. *Earlier Diagnosis.*

Of great value would be a campaign for early diagnosis throughout the state so that our State Sanatorium may receive a larger percentage of favorable cases and so save more lives to the state. As the possibility of cure or arrest of this disease depends largely upon the extent of the disease in the lungs, it is of vital importance that the consumptive be caught in the incipient stages. It is the duty of the conscientious physician to do so.

3. *We lack adequate provision for the treatment and care of the unfavorable, advanced consumptives.*

Of vital importance are adequate funds and local hospitals for the treatment of these cases. In both of these, New Hampshire is pitifully lacking. More beds for this class of cases is an imperative need. More local institutions are an absolute necessity if we hope to cope with this infection. The bill presented to this legislature had both of these objects in view.

There should be at least 60, and preferably

100, beds in New Hampshire for advanced unfavorable cases of tuberculosis.

We had a splendid hearing upon the bill have spoken of before the Appropriations Committee of the House. Twenty-six prominent people of the state, among them fourteen physicians, the overseer of the poor of Manchester, the superintendent of the District Nursing Association of Concord, the city missionary of Manchester, the secretary of the State Federation of Labor, the secretary of the State Conference of Charities, and others interested in the humanitarian work of the state, testified to the great need.

The doctors responded well to a call for their aid, and, as I have said, fourteen appeared before the hearing, among them the president and secretary of the State Medical Society, the secretary of the State Board of Health, and the chairman of the Legislative Committee of the State Medical Society.

The result was that the committee was impressed with the great need of the work, and the chairman told us at that time that there was no question of the need of the work or the merits of the bill and that the committee would do all it could, but the financial resources of the state would not permit granting of the full appropriation. It is unfortunate indeed that the committee did not make larger provision for these cases.

4. There is practically nothing being done for the tubercular children of New Hampshire. There are no sanatorium beds for tubercular children. There are no open schools. This places a big handicap upon the medical inspectors in schools. If we wish to save the anemic, predisposed, and incipient and closed tubercular children of today from becoming the active cases of tuberculosis in the future, open air schools and home supervision are a necessity. In many instances this could be done without great expense—a room or a number of rooms with all the windows out being utilized for the purpose. There is no provision for the treatment and care of the indigent crippled tubercular children of New Hampshire.

5. We lack a comprehensive scheme of home supervision. In a few instances this is being done well by the district nursing associations particularly in Concord, but much more work is necessary in this direction. This would involve a considerable amount of education and mean a good staff of visiting nurses. The state would get full value for every dollar expended. This could be done under the supervision of the State Board of Health or a State Tuberculosis Commission or some other state body. It would be perfectly feasible to cover the state with visiting nurses for the purpose of discovering and providing adequate care for practically every case of tuberculosis in the state. You will find that no matter how adequate the sanatorium and hospital provision, there are many who will not and cannot go to such institutions. Home treat-

ment is not to be recommended unless it provides the most careful home supervision, together with adequate relief and medical attendance. This, in conjunction with sanatorium and hospital treatment, would be of great value in getting every case under control. This is the ultimate aim which we must keep constantly in view.

Until every case is under control the sources of the infection are unguarded, and the disease will spread quietly, slowly, but surely.

6. We lack a central organization to direct the tuberculosis work in New Hampshire.

A central board or commission could direct the forces at work,—supervise sanatorium and hospital treatment, prevent overlapping, initiate and extend home supervision, stimulate the public as to the necessity of dispensaries, open-air schools, etc. Such a commission, thoroughly conversant with the various problems of the work, knowing the particular needs of the forces at work, could appear before our legislative committees, and, with the authority of a state organization, tell them the needs and ask for the necessary equipment. *It is a disgrace to New Hampshire that previous to this last legislature a few physicians, social workers, and others interested in humanity, should have had to fight for what little provision had been made for the unfortunate dying consumptive.*

Between Dr. Wise, the superintendent at Glencliff, and myself, there has always been a cordial feeling of coöperation. We have met occasionally to discuss the problems confronting us in our work, with much benefit to myself. We both feel that a central tuberculosis board would be of distinct value in making more effective the tuberculosis work in New Hampshire.

5.

SOME SUGGESTIONS FOR THE FUTURE.

1. A Campaign for Early Diagnosis. As the physician is the only one who can make the diagnosis we must urge upon the profession the great need of care and attention to earlier diagnosis; and at the same time the public must be instructed as to the vital importance of consulting the physician when suspicious symptoms present themselves.

I would suggest that a paper be read upon the subject of tuberculosis, preferably early diagnosis, before each and every county and local medical society. I see no reason why so vital and important a subject as tuberculosis, with its tremendous influence upon the public health, should not be freely discussed before these societies at least once a year. Certainly a paper should be read upon this subject at annual meetings of the State Medical Society.

I would suggest that all the members of a family in which a case of tuberculosis exists be examined. In this way many cases may be discovered due to family contagion. To accomplish this means tuberculosis dispensaries, particu-

larly in the cities. The establishment of such dispensaries would be of great value in discovering early cases and, of equal importance, keeping tabs on the cases returning home from the sanatoria. In some instances this work is being done by the District Nursing Associations.

2. A Permanent Tuberculosis Committee of the New Hampshire Medical Society. As tuberculosis is the most prevalent disease in New Hampshire and the physicians of the state must of necessity be interested in the problem, it would seem wise that a permanent tuberculosis committee of the State Medical Society be appointed to consider matters of interest in regard to tuberculosis and bring annually to the attention of the society any such matters of interest or matters of policy in the campaign against tuberculosis as may seem advisable to them. Such committee may confer with the Legislative Committee of the State Medical Society and may with them prepare any bills deemed advisable.

In this way the members of the society may be kept in touch with the various aspects of the tuberculosis problem and may add their influence and help towards their proper working out and solution.

3. A Vigorous Campaign for Proper Provision for Care of the Advanced Case.

As the provision made for the treatment and care of these cases is wholly inadequate to the need, a vigorous campaign for proper provision for the care of these cases is essential. This is not a question of the survival of any institution, but a question involving the safety of the public health. These cases must be provided for; for the sake of humanity, for the protection of the public health. It is a question which cannot be dodged or evaded. The advanced dying consumptive must be provided for. This must be done in a humane way, humane to himself and to his family, i.e., in local institutions within easy reach of his relatives and friends.

A good large state hospital for the treatment and care of unfavorable, advanced cases located near the centers of population is an absolute and vital necessity. If the state cannot do this then it should pass a large enough appropriation to care for those in urgent need of treatment, in this way providing for the consumptive, and at the same time encouraging the establishment of local institutions for his care. This latter policy is the one recommended by the National Association as being the most economical and satisfactory one for the state to pursue. Only when we have such local hospitals, where the advanced unfavorable case can be isolated, the same as our cases of scarlet fever and diphtheria, shall we control tuberculosis. *The control of tuberculosis is largely a question of control of the tuberculosis.* Give the favorable case every chance for cure or arrest of his disease, and educate and isolate the unfavorable, advanced consumptive in a local hospital or sanatorium. If we tackle the problem as it should be tackled, making the

fighting forces and their equipment commensurate with the size and importance of the enemy, we shall soon secure success in our efforts. If the provision is small, the day of victory is farther off, and the fight in the present all the harder and less encouraging. We, as physicians, should exert every legitimate influence at the next legislature to obtain adequate provision for these cases.

4. Open-Air Schools.

Of great value in the campaign would be the establishment of open-air schools in our cities. They are a necessity—not a luxury. Some facilities of this nature are necessary in Manchester, Nashua, Concord, and without doubt, some of the other larger cities.

5. Provision for Crippled Tubercular Children.

It is a disgrace to New Hampshire that there is no provision in the state for the treatment of crippled tubercular children. There should be such provision, and it could be gotten if the New Hampshire Medical Society and the people of New Hampshire made a vigorous campaign to secure it.

6. Home Supervision.

A comprehensive plan of home supervision, particularly in those cases unwilling to go to a sanatorium or hospital, would be a great help in the campaign.

7. A Central Tuberculosis Commission or some state body, to direct the forces at work, carry out and extend home supervision, etc., is a necessity and we should make a vigorous effort to secure it.

I am aware of the fact that there are many problems which must be worked out in our campaign. The coming years may show that our present methods are crude and incomplete, but I believe we are working along the right lines. The attainment of the full aim in our campaign, i.e., the control and ultimate suppression of tuberculosis, means years of hard, persistent and perhaps, at the time, unappreciated work. It is apparent that the carrying out of these suggestions, if deemed feasible by the society and backed by the people, means a great expenditure of human effort and thought, as well as the outlay of large sums of public money.

However, it will be worth it all if we can in time stamp out this plague of all plagues. Human life is the most precious possession of all, and in the conservation of it dollars and cents must not be considered.

The time has gone by when we can place the blame on the Almighty for carrying off 200,000 of the people of the United States every year with consumption in the very prime of life. The Lord intended every one to live his allotted three score and ten. The Almighty sends tuberculosis to no man. It is man that passes it on to man. It is our duty and it is within our power to stamp out this disease—destroy this destroyer of the home, health, and happiness.

If the great danger and need were persistently and forcibly brought home to our people and our legislators I cannot but believe that the necessary equipment would be given. New Hampshire is not a rich state, but it can do its proportionate share and is willing to if its people and legislators can be convinced that we, as physicians, are in earnest in our campaign against the Great White Plague.

Original Articles.

THE PRACTICAL TREATMENT OF INEBRIETY IN A STATE INSTITUTION.*

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PREAMBLE.

THE futility of fine and prison sentence for habitual drunkenness is now generally recognized; the public, realizing the economic loss to the state from such measures, is becoming more insistent in the demand for the inauguration of some plan which will satisfactorily care for the increasing number of cases of drunkenness which are constantly appearing in our courts, or which voluntarily solicit treatment.

Any plan proposed for the care of such cases should recognize the characteristics and personality of the inebriate and consequently the need of distinctive care for such individuals. The modern treatment of inebriety demands the initiation of a widespread policy, a policy which must be sufficiently elastic to permit of its universal adoption.

The inebriate, dependent on the degree and intensity of the condition, demands a specialized treatment, which may be tentatively divided into two methods, namely, remedial and custodial. The employment of the first method demands minimum institution treatment and maximum out-patient care. The enactment of a plan for custodial care requires more prolonged institutional detention. Prior to the selection of the treatment for these two distinctive types, an accurate differentiation of the cases must be made. This diagnosis or individualization should be relegated to those who have specialized in the work.

Contrary to the general opinion, a well equipped hospital for the inebriate is so built and regulated that adequate provision is made for the care of the varied types. The requisites of such a hospital are now well recognized. The state care, which requires for its success a well defined plan, must include, first, a parent institution; second, a well organized out-patient department which must allow for extension as conditions demand; third, detention hospitals

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in metropolitan centers, which will care for cases of delirium tremens, alcoholic psychoses, and those suffering from acute alcoholic diseases. The success of state care depends on the co-operation of these interests to their fullest extent.

Much of the ill success of institutional treatment for habitual drunkenness is due to failure to recognize that the inebriate is a distinctive individual and that in order appropriately to care for him it is essential that an institution be built for him with specialized features.

The treatment and care of the habitual drunkard, as above outlined, can be adequately met by the state, which, by assuming such control, is providing a charity as clearly a duty to the community as caring for the insane, epileptic and feeble-minded. Certainly the benefits resulting from such care prove its economic importance.

Any state inaugurating a plan for the care of the habitual drunkard should realize that the prevention and cure of drunkenness can come only by education. An institution established for such a purpose should be considered as a general educational center for the education of the public concerning the evils of alcoholism.

INTRODUCTORY.

During the past five years two commissions have been appointed in the Commonwealth of Massachusetts to investigate the subject of drunkenness, and the best means of correcting and controlling that evil. The economic loss to the state on account of drunkenness was the appealing argument for the creation of these commissions, an argument which could not with justice to the citizens of the state be disregarded. The reports of the respective commissions called attention to the uselessness of sentencing habitual drunkards to penal institutions, declared this custom wrong in principle and recommended its abandonment in most instances as soon as other suitable provisions could be made for the care and treatment of confirmed drunkards. Although the subject matter of the reports is largely descriptive of existing conditions in Massachusetts, it is believed that conditions analogous must exist in other states. It is not unreasonable to suppose that the plan for caring for the habitual drunkard or inebriate, sanctioned by Massachusetts, might prove satisfactory if adopted by other states. The policy, which will be described, is sufficiently elastic so that its inauguration by any state would be feasible; the real economic importance of the plan is certainly indisputable. Thus far its benefits to humanity have proved its worth.

THE INEBRIATE.

A recognition of the need of discriminative care of the inebriate necessarily implies the acceptance of the modern conception of the condition. The failure of the public to recognize the true nature of inebriety and the protracti-

nation of those who have had it in their power to inaugurate and direct reforms or remedial movements have heretofore proved serious handicaps to the carrying out of any practical plan which could satisfactorily individualize and treat these dependents. Such ignorance or heedlessness has in great part been responsible for the many irregular methods which have been advanced and heralded as cures for drunkenness and allied conditions; therefore, as an essential foreword to the subject of my paper, I will define inebriety. Before we can successfully cope with a disease it is necessary that we know the nature of the malady; a parallelism can be found in inebriety. Unless we can appreciate its characteristics and peculiarities we cannot hope to combat it. For a proper understanding, the study of a condition or a disease must necessarily begin by studying the environment and the individual responsible for the state or disturbance. The study of inebriety is no exception to this rule. A knowledge of the personality of the inebriate must be the foundation stone for the treatment or for any suggestion made to the public for the control of drunkenness. It has always seemed to me that much of the misunderstanding about inebriety may be traced to our misconception of the word "inebriate." An inebriate, medically speaking, is an habitual drinker or an habitual user of drugs or some other form of intoxicants. All cases of intoxication are not cases of inebriety, but all confirmed or habitual drunkards are properly classed as inebriates. Inebriety has been called a disease. This has been vigorously opposed by those who would have us consider it a habit requiring only correctional measures for its control. Adherents to the "habit" theory have contended that any existing diseased condition, whether mental or physical, is due to wilful indulgence.

Again it is maintained by some of those who are willing to consider inebriety tentatively as a disease that a general acceptance of this understanding would severely operate against any plan proposed for the suppression of drunkenness, as it would eventually lead to the public belief that the inebriate is irresponsible. I have also found that many persons have preconceived ideas about the habit of drunkenness, their opinion being formed either from the observation of a single case or from conclusions arrived at by a wrong interpretation of the types. It seems unnecessary to say that the study of drunkenness is to be approached with a realization that such a study has apparently many complex features, the complexity disappearing when we appreciate the importance of the personal equation. Although all classifications of drunkenness are indefinite and have overlapping features, it is possible for an experienced person to make a workable classification which can be of material aid to him in determining the value which might come of appropriate treatment. I feel quite sure that considerable time and energy

are in many cases misspent in expecting brilliant results from treatment of cases where the nature of the inebriate condition precluded recovery, or indeed any material improvement. The study of drunkenness is a medical-social study and for the successful application of any method advanced for its control it is essential that we appreciate that, although the diagnosis and treatment depend on the adjustment of the medical and social findings, the line of demarcation between these two studies is closely defined. Our studies of the personality or make-up of the inebriate have been for the most part a verification of the conclusions so clearly and tersely given by R. W. Branthwaite in his Report of the Inspector under the Inebriates Acts for the year 1912. It must be remembered that these conclusions do not refer to accidental or occasional drunkenness which is wilful or premeditated, and not related to inebriate alcoholism. These states of intoxication for our present purposes may be entirely disregarded. Branthwaite's description of the inebriate, which I quote *verbatim*, is as follows:—

"An inebriate is a man who may or may not desire to live soberly, but in any case cannot, unless or until some change takes place in his physical or mental state. The more we see of habitual drunkards the more we are convinced that the real condition to be studied, the trouble we have to fight, and the source of all the mischief, is a psycho-neurotic peculiarity of some sort; an inherent defect in mechanism, generally congenital, sometimes more or less acquired. Alcohol, far from being the chief cause of inebriety, is merely the medium which brings into prominence certain defects that might have remained hidden but for its exposing or developing influence."

The writer, for one, does not believe that any single inebriate, of all the many thousands admitted to retreats and reformatories, has voluntarily and of intention brought himself to that state. On the contrary he is convinced that all who possess the power to appreciate the seriousness of their condition have urgently and honestly desired to live a sober life, and have fought to this end and failed in a struggle against forces, the strength of which a normal man is incapable of realizing. Sufficient credit has never been given to the honesty of an inebriate's fight against inclination, or to the inherent weakness of his power to resist impulse that renders his struggle for victory unsuccessful. If this could be brought home to many people, who now have nothing but blame and abuse for the drunkard, there would be more sympathy shown—and sympathy would breed help. Who knows how many of the inebriates of today might have been saved had they dared to acknowledge their state during the early days of its development, and ask for help, without fear of penalty or ostracism.

The inebriate, then, is the subject of a peculiarity, the distinctive characteristic of which is his inability to take alcohol in moderation, de-

spite the most strenuous efforts of which he is capable. It is often possible for him to abstain from alcohol altogether, but rarely, if ever, possible for him to take it without becoming drunken. He is the victim of a psycho-neurotic fault that implies a defective power of resistance to the action of alcohol or drugs, in exactly the same sense as tubercular tendency implies impaired resistance to the specific infection of that disease. The peculiarity or fault is an extremely potent one, calling for recognition as the true inebriate state, of which drunkenness, disorder, and erratic behavior generally, are merely outward and visible signs.

Although it is clear that a marked correlation exists between the recognized forms of mental defect or disease on the one hand and habitual drunkenness on the other, the association is not definite enough to justify the commonly heard statement that all inebriates are more or less insane or mentally defective. When inebriates of all social grades are classed together it will be found that the majority are neither the one nor the other; indeed, many typical inebriates are extremely capable individuals during sober intervals. Notwithstanding this, even the most mentally sound amongst them are not normal persons; the evidences of peculiarity are too definite to be ignored, although its character is difficult to define, and its location obscure.

Concerning the mental characteristics and make-up of an inebriate, I can safely say that when analyzed many cases of habitual drunkenness show mental and physical defects which may, or may not, have antedated the drunkenness, a fact which lends additional support to the contention that the punitive measures which are habitually or quite generally used toward these individuals are unjust and should be discontinued. It is true that this type of case might consistently be considered hopeless or irresponsible. This is an added reason for condemning the sentencing of such individuals, a method which is irreconcilable with our findings. Statistical knowledge bearing on the subject is overwhelmingly supportive of the conclusion that a considerable number of confirmed or habitual drunkards are mentally defective, the defectivity being manifested in various ways, ranging from mild emotional disturbance and judgment perversion to well defined psychoses. While these mental defects have been quite generally found in the more confirmed or advanced cases, some recent investigations and analyses of incipient inebriates have shown certain functional nervous disturbances which might have antedated the drunkenness. Laboratory methods which are now being used for the study of these cases will doubtless in time give us valuable results; then, and not until then, can we definitely assert that actual mental defect in the drunkard existed prior to the development of the confirmed drunkenness. The results along these lines have been more than suggestive, but not entirely conclusive.

Recognizing that inebriety is a well defined condition, we can define the inebriate state as follows:—

(a) Inebriety is an expression of nervous weakness, the nervous weakness being inherited,—a psycho-neurotic fault; founded on this weakness, manifestly a defect, is a habit we call drunkenness.

(b) The inebriate is therefore the sum total of his personality or make-up, and the symptoms which we call drunkenness.

(c) Inebriety can be considered technically as a form of a disease in the sense above described, a condition which implies a graded responsibility, the degree of responsibility being determined after a consideration of the individual case.

THE INSTITUTION.

There is a popular belief that institutional care is all sufficient for those unfortunates who are mentally or physically diseased; especially has institutional care been recommended for those persons who are resistive to the ordinary methods usually employed for the care and treatment of chronic disease. Inebriety has been no exception to this rule; indeed, if one would review the history of the management of the drunkard he would doubtless be surprised to find that an appreciation of the chronicity of the condition has existed from the earliest times, and that this alone has been responsible for the demand for the segregation or imprisonment of the drunkard. This method of management, with little or no variation, has been handed down from generation to generation, and as no practical substitute has been offered, the time-honored system, punishment, or coercion, in some form, for the drunkard has been continued. I do not deny that many honest attempts, both preventive and remedial, have been advanced to solve the problem. These attempts, due largely to the failure to recognize that voluntary or co-operative methods are superior to enforced or punitive measures, have met with little success. We must remember that today we are better prepared to meet the problem. The knowledge that the inebriate is an entity and our understanding of the benefits from individual treatment, have given us valuable weapons to fight with, weapons which, if considerately used, are of considerable range and value.

Any plan which is put into practice for the treatment or amelioration of drunkenness should be controlled and administered by the state. The magnitude of the problem and the closely interwoven economic questions argue against local or municipal control.

The successful care and treatment of inebriety demands the inauguration of a definite policy which includes both institutional and non-institutional departments, both of these departments being inter-related. The institution, or found-

tain head, of the system demands first consideration. On the threshold of our contemplated plan for the practical care of the habitual drunkard, it appeared to us that our work should be directed: first, to the extension of individual treatment of cases; second, to the securing of remunerative employment for cases which were under our care and treatment; third, to the compiling of accurate histories of those who had been discharged from the hospital; fourth, the establishment of after-care, which department should be an integral part of the hospital.

It is, therefore, at once apparent that something more than the mere housing of the individual is needed. An institution for the purpose must be adaptable; it must have distinctive qualities and be especially built and equipped for the class of persons for which it is intended; in other words, certain conditions are required, departures from the character of an ordinary institution; and lastly, the institution should be so constructed that it can adequately treat the varied types of inebriety committed to its care. The requisites of such an institution are:—

(a) A sufficient area of land to provide for agricultural development and for outside employment for the patients.

(b) Sufficient plant for industrial training.

(c) A tract of land of sufficient continuity so that there will be an opportunity for the segregation of the diverse cases.

(d) Adequate provision for both male and female inebriates.

Acting on these recommendations, a large tract of land was purchased in Massachusetts. The area selected has natural advantages; in other words, the land is largely undeveloped, thus allowing for considerable work for the inmates and affording an opportunity for affiliation and co-operation with the forestry, agricultural and other State Commissions. This co-operation in our estimation is an essential part of our educational scheme and is also of sufficient economic importance so that the economies have been helpful in building and equipping the plant. The acreage, over one thousand acres, is sufficiently large so that the requisites before mentioned have been met. The cottage or colony is the pivot centre of our scheme. Three different colonies are considered. First, a hospital colony for men, which will take care of the hopeful cases; second, a detention farm colony which will provide for the more chronic and resistive type of patients; third, a hospital for women. Briefly expressed, the colony groups would care for the following types of patients: The cottages for men would receive:—

1. Patients who come voluntarily or who are committed by the courts.

2. Young habitual drunkards placed on probation by the courts on condition that they spend a specified period at the hospital.

3. Suitable cases transferred on parole from the detention colony.

4 Non-criminal habitual drunkards committed by the criminal courts or received voluntarily as a condition of probation.

The cottages for women would receive:—

1. Patients who come voluntarily or who are committed upon application.

2. Cases placed on probation by the courts on condition that they spend a specified period at the hospital.

The cottages, which are units, are built in groups distributed over the large tract of land. A centralization of the administrative and service group is necessary. For purposes of economy these buildings, with the ordinary service buildings, form a central group. I would at this point emphasize that the essential part of our housing scheme is the cottage. These cottages must be so situated and constructed that they will readily lend themselves to the needs of the patient groups.

OUT-PATIENT DEPARTMENT.

At an early period in our institution career we recognized that the mere training of a patient at the hospital was in itself an inadequate provision, when a discharged patient was compelled immediately to return to adverse conditions. Accordingly, five years ago an out-patient department and clinic were developed. Modest in its beginnings, it has rapidly grown in extent and its usefulness has progressively increased. The Norfolk State Hospital has now established in metropolitan centers two such departments which are serving definite areas of the state. The department, which is in charge of a physician who is assisted by non-medical workers, is a fixed part of the hospital. An active vocational bureau is maintained, visits are made to the homes of discharged patients, aid is supplied to dependent families and every effort is made to reinstate the patient in his business interests and domestic relations, for unfortunately it is often the case that the victim of habitual drunkenness has lost not only his own self-respect, but has forfeited the respect of others. At this point a strong helping hand is needed. This was the fundamental reason for the beginning of our out-patient work. Another feature of the department is the medical and social clinical work. An increasing number of persons apply for advice, and it is quite often feasible to treat such persons outside of the institution, reserving the hospital or custodial treatment until conditions demand it. Furthermore, the out-patient department serves as a central educational focus, acquainting the public with the aims and purposes of the hospital. This department has rendered valuable aid in carrying out the educational and medico-social work begun at the hospital. Every patient at the time of his discharge is impressed with the idea of coöperating with the out-patient department. Some of these discharged men report to the hospital, others at the office of the

out-patient physician, while others are visited at intervals by the physician of the out-patient department. As before stated, particular attention is paid to the social readjustment of the patient, and every effort is made to secure for him congenial work and an environment suitable to his condition. During the past year 3286 visits have been made to the homes and workshops of discharged patients, and over one hundred permanent positions have been obtained for them. In order to emphasize the importance of the work of this department the following figures, covering one year's work, are given:—

Visits to office	471
Visits to hospital	105
Visits to homes of patients who are at the hospital	516
Visits to homes of patients who have been discharged from the hospital	2770
Visits to employers relative to work for discharged patients	130
Situations obtained for discharged patients	97
Men who are working and abstinent	1188
Men who are abstinent, but not working ..	227
Men who are drinking some, but working ..	295
Men who are drinking and not working ..	472
Men who have not been located	298
No answer to inquiries	481
Men applying at office, recommended for admission to hospital	470
Men applying at office, refused admission to hospital	367
Patients reporting at office, abstinent and working	360
Men drinking whose return was advised ..	137
Men drinking whose return was refused ..	184
Inquiries	473
Consultation with outside parties	76
Letters sent out relative to discharged patients	891

Another branch of the parent institution which should be considered is the establishment of hospital clinics or detention hospitals. It is not necessary that these hospitals should be especially built for the purpose, as arrangements can frequently be made to coöperate with general hospitals which are already established. In such branch hospitals should be treated cases of delirium tremens or cases of acute alcoholism, which either voluntarily present themselves for treatment or are brought in as emergency cases.

The plan as developed by Massachusetts, and which is now in part in active operation, can be described as follows: First, a state hospital for the treatment of alcoholie and drug habitués, developed on the colony plan, with a sufficiently ample and flexible equipment so that appropriate care and treatment can be given to the different types of inebrity; second, an out-patient department and clinic with broad and well-defined duties; third, detention hospitals and hospital clinics having specialized features for the care and treatment of cases of acute alcoholism.

A substantial start has been made. The Massachusetts central state institution has been in part built, out-patient departments have been established and the coöperation of the hospitals is assured. To the trustees and to those of us who are interested in the proposition the real incentive for the contribution of our work is our conviction that the public believe in the integrity and stability of the system as planned six years ago.

I feel that my paper would be incomplete if I failed to describe our method of treatment. Believing as we do, that the inebriate condition has for its basis a distorted mentalization, our efforts are directed in an endeavor to interest the patient in his individual case and, having accomplished this, to make the interest self-sustaining. Our experience has shown us that the success of hospital treatment depends upon:—

(a) The ability of the patient to coöperate in treatment.

(b) Our ability to introduce into the patient's mentality some tangible substitute for the desire for artificial stimulation.

Such a result is brought about by attention to the patient's mental and physical hygiene, and necessarily depends on the educational measures inaugurated at the hospital and continued by the patient after he leaves the institution. The treatment must necessarily be considered as in the realm of physiologic therapeutics, which is supplemented by the simplest form of suggestion. The suggestion is really an auto-suggestion, the result of a correlation of impressions which the patient receives from his association with the physicians and from his relation to the hospital environment. The physician is concerned in an analysis of the individual case, which is made possible by encouraging the patient to coöperate in his own recovery, by strengthening his self control.

I have reserved for my concluding paragraphs an account of our work extending over a period of five years. Considering the result of hospital treatment, it must be borne in mind that the total number of discharges is considered. No attempt has been made to differentiate cases. Each case has been considered individually, the following conditions determining the final report of the result of treatment,

1. The type of inebriety, divisible for practical purposes into three classes:—

(a) The regular drinker,—one accustomed to the use of stimulants daily.

(b) The irregular drinker,—one accustomed to the use of stimulants at short intervals.

(c) The periodical drinker,—one accustomed to drink at periodic intervals, periods of months or years elapsing between the periods of inebriety.

Thus a man whose period of drinking occurs at intervals of six months may be admitted to the hospital in a state of acute intoxication, recuperate rapidly and leave the hospital in six

or eight weeks. Under usual conditions this man would not relapse for four or five months, therefore the report of the result of hospital treatment should be suspended for a considerable period; at least, a final report on the case should not be made until one or more of the man's episodical attacks of drinking have been successfully combated. On the other hand, if a man who had been a regular or irregular drinker before his hospital treatment, is abstinent for a considerable period after his discharge from the hospital (we have tentatively placed this period at six months), we are justified in considering the man as improved.

2. The conduct and attitude of the patient after his discharge from the hospital. Under this caption we consider the ability of the man to earn his livelihood, and his success in readjusting himself to society.

3. The willingness of the patient to coöperate with hospital authorities after his discharge from the hospital.

Guided by these rules, we have carefully investigated the present condition of all patients discharged and have made careful comparative tests.

The following figures, therefore, have been compiled after continual and prolonged observation of discharged patients; these do not include patients who have not been discharged for a maximum period of six months. During the past five years 1174 patients have been investigated as above described. Out of this 1174, approximately 753, or 64%, are today working and either totally abstinent or drinking so little as not to interfere with their work. Practically all of these men had, before coming to the hospital, dropped below the class of the self-supporting.

The successful treatment of the inebriate in a state institution may, therefore, be said to be dependent, first, on an appreciation of the true nature of the condition; second, on a realization that the inebriate, dependent on the degree and intensity of the condition, demands specialized treatment; third, the necessity for active and continued coöperation with those interests which are genuinely concerned in the problem; fourth, diligent and consistent work and an adherence to the principle established by a definite method of control; and lastly, the education of the public to a proper realization of the status of the institution to the community.

AN ELECTRO-MOTOR BONE OUTFIT AND TECHNIC OF ITS USAGE.

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UNTIL 1911, when the author first began to do his bone grafting operation for Pott's disease,

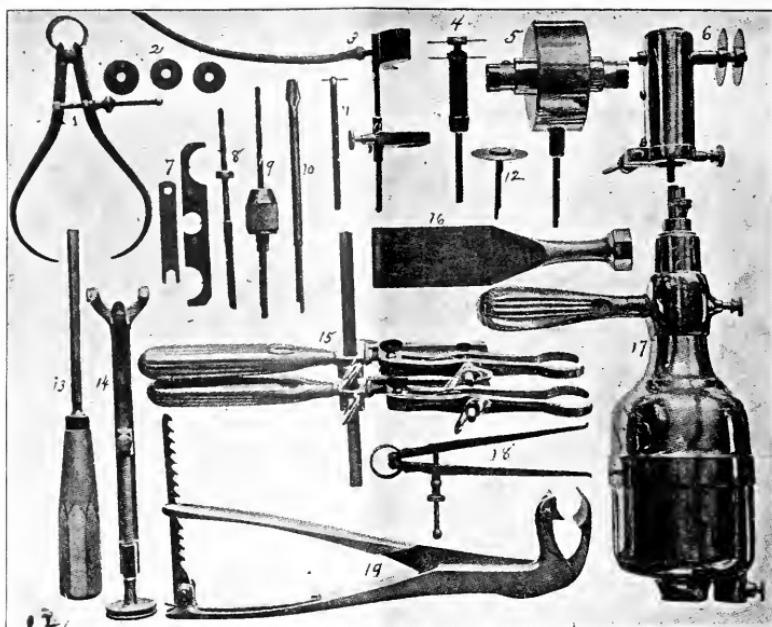


FIG. 1.—Author's armamentarium for bone work.

1. Calipers. 2. Doyen washers or guards for motor saw. 3. Spray and guard for saw. 4. Twin saw. 5. Dowelling instrument or lathe with cutters of two sizes in place. 6. Right angle twin saw. 7. Wrenches for twin saw and drill chuck. 8. Drill with guard to prevent it penetrating too deeply. 9. Drill chuck and small drill in place. 10. Burr for drilling fractured neck of tibia for peg graft. 11. Small circular saw. 12. Large saw. 13. Carver's gonge. 14. Lowman fracture clamp. 15. Berg fracture clamp. 16. Wide osteotome for splitting spinous processes for the insertion of bone graft for Pott's disease. 17. Surgical electric motor. 18. Compasses. 19. Lambotte fracture clamp, large and small.

the bone transplant had been so infrequently used as a surgical agent that no special technic had been developed for its removal. The electric motor circular saw (Doyen) had been used for skull work, driven by either a flexible shaft from a motor on a nearby stand, or by the Hartley-Kenyon apparatus, where the cutting tool is attached directly to the motor shaft,—and, so far as the author is aware, it had not been used in any systematic way for the removal or the modelling of bone transplants.

The author began his spinal work by removing the graft from the tibia with chisel and mallet, and later others made use of the Gigli saw. It was soon found that these methods were not only slow and inaccurate, but that they presented the dangers of bruising, cracking, or fracturing the graft or tibia, or both. This is especially true in adult patients, on account of the brittleness and thickness of the cortex. In the child, on account of the small diameter of the bone, the danger of fracture is evident, although the graft is obtained by means of hand tools with much less difficulty and much less likelihood of fracturing it.

Also, in obtaining grafts 8 in. or more in length, it was found that the hand-tool methods were crude, requiring too much time, tiring the surgeon, and unnecessarily shocking the patient.

In removing the graft with the chisel and mallet, the graft must many times be handled and shaped after its removal, whereas with the circular motor-driven saw a pattern marked in the periosteum with a scalpel can be followed accurately and the graft shaped *in situ* during its removal. The graft pattern is usually obtained by bending a flexible probe or leaden bar into the prepared graft-bed, whose shape is transferred to the tibial surface from which the transplant is to be removed.

In modelling the graft into dowels, wedges, inlays, and in making use of the different well-known mechanical devices, such as tongue and groove joint, dove-tail joints, mortices, etc., the motor outfit is still more indispensable. An accurate cabinet-maker-fit may mean success in many instances where an ordinary crude coaptation would mean failure. Especially is this true in ununited fractures.

The skepticism as to the value of the graft, plus the difficulty in obtaining and moulding it, has undoubtedly delayed the earlier development of the use of this most valuable surgical agent. It is difficult to give an adequate reason why in the rapid advance of surgery the work of osteoplasty has, until very recently, stood for so long a time practically at a standstill, especially in view of the fact that Ollier, in 1858, from ex-

tensive animal experiments and surgical work,—although working in the pre-antiseptic era,—furnished abundant evidence that the autoplastic bone graft survived and lived when consisting of cortex, periosteum, and endosteum, and implanted into a bony defect where it had function to perform.

As in many other fields of endeavor, electric power has been the chief means of placing this valuable agent at the disposal of the surgeon. In recent years the generalization of the use of electricity for lighting, heating, and power purposes in most hospitals, private dwellings, etc., has also been a potent influence, and has enabled the surgeon always to be in reach of the necessary power for operating his motor outfit—whether he is operating in the city, suburban hospital, or private dwelling. The electric automobile or storage battery can also be made to furnish a movable source of supply, which can be utilized at any time, or place.



FIG. 2.—The manner of holding the motor saw. The connecting wire to the electric wall fixture. The foot switch control. The sterilizable connecting wire to the motor. The sterilized rubber tube connecting the tank of normal saline solution and the spray attachment above the saw. The author's broad thin osteotome for splitting the spinous processes and the calipers for determining the length of the graft are on instrument table.

The ideal surgical electro-motor outfit should measure up to the following requirements:—

1. It should permit of the thorough sterilization of every part which comes in contact with the surgeon or the field of operation, including the electric cable for transmitting the power.

2. It should permit of ready application to all types of osteoplasty, whether situated super-

cially or in a deep wound; whether the work to be done is the procuring of the graft, the preparation of its bed, the drilling of holes, the removal of bone for the correction of deformity or disease, or to allow the proper approximation and alignment of bone fragments in cases of fracture.

3. It should permit accurate control and guidance of the motor cutting tool in all wounds and at all angles.

4. It should permit easy and convenient control of the electric current.

5. It should be light in weight, small in bulk, and permit of easy transportation.

6. The motor should be universal and adapted to all types of electric current.

7. The motor instruments,—saws of different types, drills, dowel shapers, etc.,—should be held in place in the motor by an automatic catch favoring their speedy interchange.

8. The motor-cutting tools should be constructed similarly to those long-used by the artisan for working hard materials, and should be of sufficient variety to meet every requirement of bone carpentry. The twin saw for inlay work should be so constructed that it can be readily adjusted,—to the fraction of a millimetre,—by the gloved hands of the surgeon at the operating table. The dowel cutters, with drills of corresponding diameters, should vary in size sufficiently to meet all requirements.

9. The motor should furnish enough power to drive rapidly a saw or large drill through the thickest human cortex without tendency to stall.

The author's outfit, described in this chapter, has been carefully devised and perfected with the coöperation of the Kny-Scheerer Company, to fulfil all of the above-mentioned requirements. The motor tool is attached directly to the motor shaft; the motor is covered by an adjustable sterilizable shell, enabling the surgeon to hold the motor in his hands while the tool is cutting; the weight of the outfit has been found to be an advantage rather than a detriment in its application, and it is believed that it completely fulfills every demand.

DESCRIPTION OF OUTFIT.

The author's electric operating bone set consists of a small universal motor, *i.e.* one which will operate without readjustment on all types of electric currents, such as direct, alternating, and of varying cycles. If it is to be used on a 220 volt current, a 100 c.p. 220 volt lamp should be placed in series with motor. Electrical engineers have found it impossible to construct a light motor which will resist deterioration from repeated boiling of the motor itself, or any other safe type of sterilization. Both the insulating material and the carbon brushes are liable to disintegration from repeated subjection to heat. Therefore, the Hartley-Kenyon method of removable, sterilizable shells has been adopted, as it seemed by all means the most desirable.

The apparatus consists of a small portable motor with a sterilizable shell which is divided into two parts, so that it can be removed for boiling. A guide handle, which also can be boiled, is adjusted on and at right angles to the small end of the motor over the shell.

A foot switch is supplied to make and break the electric circuit. A long electro-conducting cord is provided to transmit the current from the source of supply. In one end of the cable is a fitting, to be inserted into the electric supply, and on the other end is a connection for the foot switch. Midway between the two terminals, a connecting block is mounted, into which is inserted the connecting cord leading to the operating motor. This connecting cord has fitted onto one end of it a metal tube and connection for the motor, and is the only portion of the electric cable to be boiled.

The foot switch can be used with either side upward. If the corrugated rubber side is upward, the connection is made by pushing down with the foot. If the other side is used upward, the foot should be placed over the entire switch, and by depressing, or allowing the aluminum lever to rise by moving the heel up and down, the current is turned on or off. An important feature of the foot switch is that it contains a speed regulator, so that the more gently the surgeon presses the pedal the slower the tool turns. This is especially a great advantage in starting to drill hard bone. When the pedal is completely depressed the motor is at full speed.

CUTTING INSTRUMENTS

The *single saw*,—about $1\frac{1}{4}$ inches in diameter,—with Doyen graduated washers or guards, is used more than any other of the cutting tools. These saws are of the best steel and are very thin, and are held on the shaft by means of nuts which allow the saw blades to be changed when they become dulled.

The *twin saw* is so constructed that it can be adjusted to any desired width, even to the fraction of a millimetre. It consists of 2 single saws, which can be used singly or together. Each saw is mounted on a separate shaft, one of which is hollow, so that the other shaft can be inserted into it and so bring the saws at any distance apart that may be desired, according to the size of the bone being operated upon and the width of the graft or gutter to be formed.

In determining the size of the inlay or the gutter, the saw teeth are placed on the bone in the manner of a compass or calipers in order to determine the width of the inlay or gutter, and, with the saws undisturbed, the shaft of the proximal saw is prevented from turning by placing the accompanying wrench or a heavy clamp on the flat-sided end of the shaft, while the operator locks the saws together by turning the saw on this shaft away from him by protecting his gloved right hand with a piece of gauze over the saw teeth.

The *dowel instrument* or *lathe* is fastened into the motor by the automatic catch, precisely as are the other cutting tools. Its speed of rotation is reduced about 10 times by steel gears.

The size of the bone graft dowel or nail is regulated by the size of the cutter, which is adjusted in the lathe. The largest cutter is for turning out a bone graft spike for a fracture of the neck of the femur. The smallest one is for making pegs to hold inlay grafts in place. The medium-sized cutter is for making graft nails for pinning the scaphoid to the head of the astragalus in an arthrodesis for advanced flat-foot, or other condition.

The dowel-shaper is used by first inserting it into the motor, and then placing the apparatus parallel with and on the edge of the instrument table. While the assistant steadies the motor and lathe by gently pressing the same on the table, the operator, holding with a strong clamp the strip of bone to be shaped, pushes it into the dowel cutter. When withdrawn, it is a perfectly round dowel, and is ready to be driven into the drill hole made by a drill of a size corresponding to the dowel-cutter used. The strip of bone is obtained by means of the single or the twin saw.

The *small saw* is used for cutting the ends of the inlay graft or the strip of bone which is being removed to produce a gutter. On account of its small diameter ($3\frac{1}{4}$ in.) the saw does not encroach into the gutter walls while it is cutting across the inlay.

The *guard with spray* is an important attachment. It is connected by a sterile rubber tube with a douche bag suspended over the operating table, and maintains a constant spray of saline solution on the saw, preventing friction, heat, and flying of the solution.

The *twist drills* are of the type used by the machinist for drilling metal.

STERILIZATION.

The parts to be sterilized are first removed from the motor by releasing the plunger on the end of the electric cable, so as to allow it to come out. This part of the electric cable, from the motor to the black rubber union on the contacting cord, is boiled. The handle and shells are removed and, together with the cutting tools, sterilized by boiling. The part into which the cutting instruments are inserted is removed from the motor, with the long part of the sterilized shell. This is the part which contains the automatic catch. A little sterile vaseline is placed in the motor shaft opening, and the motor is laid aside until the sterilizable parts are ready to be readjusted.

After sterilization, the operator picks up the long part of the shell with his gloved hand and places it on the corresponding end of the motor, which the nurse holds with the small end up. The nurse holds the large end of the motor in the palm of her hand while the surgeon fastens the shell to the other end by turning the shell to-

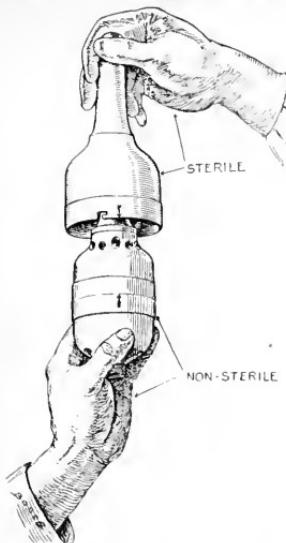


FIG. 3.—Method of putting author's motor outfit together. The sterile shell is turned to the left until it can be turned no further and the arrow on the shell comes in line with the arrow on the motor. The surgeon then has control of the motor and turns it over (see Fig. 4).

ward the right as far as it will go, or until the dart on the shell comes opposite the dart on the motor. The operator can then manage the motor alone by grasping the sterile half shell, which is firmly secured to the motor. The second half of the shell is placed over the other end of the motor and is locked in place to the first half shell by a bayonet fitting. The guide handle is placed over the neck of the motor and securely

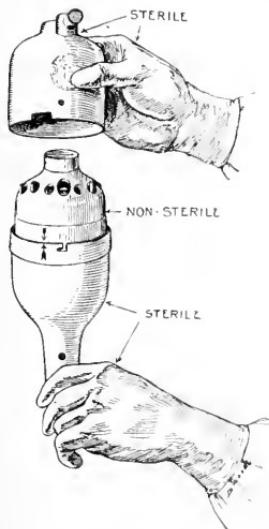


FIG. 4.—While the surgeon holds the motor by the sterile shell already attached, he locks the other half shell in place.

fastened by the set screw. The connecting plunger on the side of the electric cable is then inserted through the sleeve on the shell into the motor. This portion of the electric cable, with its metal tube and block connectors, is especially constructed to withstand sterilization by boiling. The corresponding connector is next inserted into the block connecting block in the central portion of the cable leading from the socket of electric supply to the foot switch which the nurse has previously connected and arranged with the foot switch in a convenient position for the surgeon's controlling foot while he is operating. The motor is then ready for use. The saws or the cutting tools are inserted by turning them over a little to the right or the left, while the knurled ring on the end of the shaft is pressed in by the operator's thumb, or until the spring engages the slot on the side of the shaft of the instrument. The cutting tool is unlocked by pressing the knurled ring on the end of the shaft at the same time that the instrument is withdrawn. The action of the motor is controlled by the foot switch which makes and breaks the electric circuit, and the surgeon thus has the uninterrupted use of both hands and the most precise control of the cutting instruments.

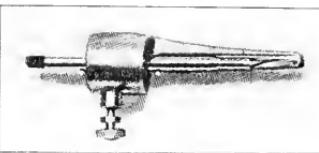


FIG. 5.—Illustration of Martel's attachment to author's electrical surgical outfit for laminectomy and skull work. The tool is used to cut away the laminae and the blunt shoe at the end prevents any injury to the dura or cord. The operation is much hastened thereby. A skull flap is produced and turned up in a similar way.

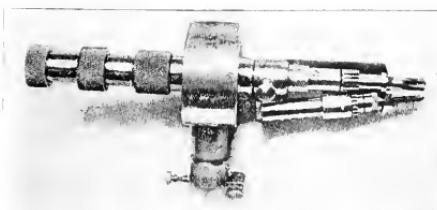


FIG. 6.—Martel's attachment to author's electrical surgical outfit for skull work. The skull is drilled with the large blunt drill, which automatically stops the instant the inner table of the skull is pierced. The mechanism is so perfect that the dura is never injured. In experimental tests a piece of wet paper placed on the inside of a dry skull has never been damaged by drilling the skull over it. The skull flap is then turned up by inserting the companion cutting tool into the hole thus made (see Fig. 5).

This automatic catch is a great improvement over the screw and screwdriver arrangement for holding the cutting instruments as used on the Hartley-Kenyon motor. In certain plastic work, especially fracture work, it may be necessary at one operation to employ several different cutting tools,—such as two sizes of single saws, twin

saw, different sized drills, and surgical lathe,—and also to interchange these several times. The automatic catch permits of almost as speedy a change of motor tool as of hand instruments, and is a most important feature of the outfit. As far as the author is aware, this is the first automatic catch to be incorporated into an electric motor surgical outfit, and it is almost indispensable to rapid work. Then, again, the screwdriver is a source of danger to the operator's gloved hand, because while loosening or tightening the screw, the motor shaft may turn, allowing the screw driver to push by and puncture the surgeon's glove.

When the motor tool is cutting, the handle,—which is placed at a right angle to the long axis of the motor,—is held in the operator's right hand; the base of the motor is grasped in the left hand, and the right foot manipulates the foot switch, which is placed on the floor beside the operating table, at a place convenient for the operator's foot. If found necessary, the position of the motor and the hands may be reversed.



THE MANAGEMENT OF BREAST FEEDING, WITH CASE REPORTS.*

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It would be presumptuous on my part to attempt to give this group of pediatricians many new points on breast feeding, but this is a subject of much interest to me, and I thought that this short paper, even if much was a restatement of old observations, might stimulate in yourselves and more especially through you the general practitioner and the laity a more keen appreciation of the value of breast feeding. Almost daily I see infants put on the bottle, when with a little tact and patience I believe many of them could have with much benefit remained at the breast fully or partly for some weeks longer.

One would judge from the numerous articles written on artificial feeding and the scarcity of them on breast feeding that everyone was supposed to know all about the natural method. In fact, do we not over-estimate our ability to adapt artificial food to infants? During my post-graduate work it has always seemed to me that breast feeding did not receive its deserved amount of time. Much depends upon the general practitioner and his attitude, as with him rests the responsibility of ascertaining sometime previous to the expected date of delivery that the breasts and nipples are in good condition, any sunken nipples receiving appropriate treatment at this time. He should also inquire as to the mother's habits, digestion, condition of the

bowels, etc., as these all have an important bearing on successful nursing, and the prospective mother should be impressed with their importance.

I recently saw an infant, the first child, put on the bottle because of sunken nipples, which could undoubtedly have been prepared for their natural function had the necessary precautions been taken earlier.

One frequently sees a mother try to nurse her infant for two or three weeks. Then the breast milk becomes deficient. This occurs because the mother is tired out by her new duties, from lack of sleep and by seeing her infant losing in weight. The mental attitude has an unfavorable influence on the milk secretion, and after a little time, of her own initiative or by the advice of a physician, the infant is put on a bottle.

Dr. Griffith has well said that the adjustment of equilibrium between the mother's milk and the infant's digestion should be awaited and no haste made to give up the natural food until we are well satisfied that a change should be made.

Lucy Nash says that few mothers understand that the baby's cry during the first two or three days before the flow of milk becomes established, is not a cry of hunger, but a natural process for the full expansion of the lungs. In consequence they become nervous and get into a nervous state which affects the milk supply unfavorably.

Very recently a mother told me that she wanted to nurse her infant, then six days old. She was giving the bottle four or five times a day until the breasts became active. The breast milk was slow in coming as might be expected. I advised that all artificial food be stopped and that the infant be put to the breast at regular intervals. A report three days later said that the breast supply was sufficient and the infant contented.

The breast milk is often said not to agree with the infant. Very frequently, however, the milk is not analyzed, and even if this is done it may be misleading owing to the method of obtaining the sample to be analyzed. I recall one case where the laboratory report said that the milk was very poor and insufficient to nourish any infant. The infant, however, remained at the breast and continued to thrive. I find that the majority of general practitioners do not appreciate the marked variation in fat percentages between the first and last milk obtained from the breast. My cases reported in this paper well show this variation. In one instance in a multipara I emptied one breast with a breast pump, saving the milk in four consecutive samples, the analysis of which follows:—

	Fat.	Proteid.	Sugar.	Ash.	Total Solids.	Water.
No. 1	2.23	.98	6.60	.17	9.98	90.02
No. 2	4.32	1.07	7.16	.19	12.74	87.26
No. 3	6.84	1.03	5.50	.16	13.53	86.47
No. 4	7.92	1.12	—	—	—	—

It is needless for me to mention the relation of infant mortality to breast feeding. It might,

* Read before the New England Pediatric Society, March 26, 1915.

however, be wise for us as physicians to impress this point more fully upon the mother. I believe that most mothers who thoroughly understand the value of even two or three months of breast feeding to their infants would make every possible effort to perform this duty.

Frequently an infant is allowed to nurse too often and at irregular intervals, both of which are bad for mother and infant.

Dr. Fisher says that 90% of poor mothers are able to nurse their infants, while only 17% of rich mothers are able to do so. This may be correct but from my experience I think that he gives too great a difference between the two classes, the 17% being too low.

Much has been written regarding the nursing mother's diet, and I believe that many physicians are inclined to restrict so much as to be a hardship for the mother. She gets to feel that this or that article of food is disturbing her infant and she becomes nervous in consequence.

I am inclined to allow a liberal diet, limiting only things known to disagree. I fully believe that the condition of the mother's nervous system is more important than her diet if that is reasonably good.

It has been said that a mother has an abundance of good milk and could nurse her infant, or that she has a scanty supply of poor milk and could not perform that duty.

Dr. McClanahan asks, Is there no middle ground between breast feeding and bottle feeding? He strongly advocates supplemental feeding in suitable cases.

I have even been criticized by physicians for trying to use supplemental feedings. I am, however, having good success with this method in many cases and feel that others would be well paid for their efforts along this line. I have today at the time of this writing seen a five-month infant, weighing 16 pounds and in excellent condition. The mother during the early weeks of nursing had very little breast milk, and her physician, a leading pediatrician, advised that the infant be put on the bottle. The mother, however, persisted with the breast feeding, the infant doing well. At three months one nursing was replaced with cow's milk. This is continued at present, the remaining feedings being from the breast.

This illustrates that it is not always possible to predict the functional activity of the breast.

The following cases are cited as representative of many in my files.

CASE 1. Male; one month of age; birth weight $\frac{1}{2}$ pounds; weight when seen at one month, $9\frac{3}{4}$ pounds; breast-fed; nursing at two-hour intervals. There had been slight vomiting from birth, but the main difficulty was persistent colic, with loose stools, 3 to 5 daily, containing many fat curds. The infant had considerable eczema about the face and shoulders. The mother had become discouraged and tired out from lack of sleep so that it had been decided to put the baby on the bottle. An analysis of the breast milk showed the fat in the sample taken before

nursing to be 2.25%, that taken after nursing 7.96%. The mother was directed to nurse her infant every three hours, for five minutes, this to be preceded by one-half to one ounce of water. Within a short time all vomiting and colic had stopped and the eczema much improved.

CASE 2. Male, five weeks of age. This infant had been breast-fed for four weeks, during the latter part of which the mother, in consequence of her extra duties, became tired and nervous. The infant became fretful and colicky; the weight stationary at $8\frac{3}{4}$ pounds. The milk became scanty and at four weeks breast feeding was discontinued. The artificial food did not agree and I was consulted when the infant was five weeks of age. I returned the infant to the breast, supplementing a small bottle feeding after each nursing of five minutes' duration. The mother was as far as possible relieved of care and worry. The breast secretion soon improved and an analysis showed the first sample, fat 5.76%, the second, 7.75%. The artificial food was discontinued and three-hour nursings of five to eight minutes' duration ordered, preceded by water. The vomiting and colic were soon relieved and the infant began gaining six to eight ounces a week. At twelve weeks the weight was twelve pounds.

CASE 3. Male; the second child; birth weight 9 pounds; breast-fed. From the first this infant had severe colic, keeping the household upset day and night. The mother was nursing the infant every two hours, day and night, in an attempt to keep it quiet. The breast was emptied at each nursing yet the baby seemed hungry. The mother was tired and nervous. The infant vomited frequently, the stools were numerous and contained many fatty masses. The weight had gradually increased to 10 pounds.

I first saw this infant when it was one month of age, at which time it had been decided to discontinue breast feeding. An analysis of the breast milk showed fat, 3.6%, and 6.2%. Five to eight-minute nursings at three-hour intervals were ordered after each of which the infant was offered one ounce of dextrinized barley gruel in a bottle. It was arranged so that the mother could have good rest at night and as a result conditions improved at once. A small amount of skim milk, and still later whole milk, was given with the gruel. The artificial food has been gradually increased as the breast secretion demanded and at five months the last breast feeding was given. At this time the baby weighed sixteen pounds, was firm and could nearly sit alone.

CASE 4. This infant, the first child, was first seen during my dispensary service, November 25, 1914. At this time it was two months of age, its weight was 12 pounds. It had been breast-fed from birth and the mother brought the infant for advice as to what food to give, as the breast milk was deficient. The breast was emptied at each nursing and the infant not contented. I was unable at this time to secure milk for analysis. The mother was advised to nurse her infant every three hours for five minutes; following which two ounces of modified milk were offered, care being taken to have a nipple with small holes. The amount of artificial food was increased as seemed necessary. This infant was brought to the dispensary quite regularly for a period of nine weeks, then the mother went out of the city on a visit. This infant was next

seen at six months of age, at which time the weight was 17 pounds and the general condition good. The modified milk had not been increased. The breast milk of fairly good quantity showed the following analysis, before nursing, fat, 2.72%, protein .79%; after nursing, fat, 11.52%, protein not obtainable as sample was small.

THE PRESENCE OF *B. DYSENTERIAE*, *B. PROTEUS VULGARIS*, *BACT. WELCHII*, AND *MORGAN'S BACILLUS* No. 1, IN THE STOOLS OF CASES OF INFECTIOUS DIARRHEA.

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AND

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THE interpretation of the results of any bacteriological study of a disturbance of the gastrointestinal tract is extremely difficult, owing to the great number and variety of organisms present, and to the fact that under abnormal conditions, some of these may multiply so rapidly as to lead the investigator to believe that they are the cause of the condition rather than the result of it. We all work under more or less of a bias, and if we decide that some one organism is the cause of a pathological condition we are apt to spend most of our time in searching for this one bacterium and in neglecting other factors which may be the true cause of the trouble. We believe that this accounts to a great extent for the importance attached to the several organisms that have been described as the cause of infectious diarrhea in infants. In taking up a study of this condition we decided to examine a large number of stools for four of the organisms that have the best evidence in their favor as being the etiological agent, rather than to attempt a complete bacteriological examination of the stools. These organisms are *B. dysenteriae*, *B. proteus vulgaris*, *Bact. welchii*, and *Morgan's bacillus* No. 1.

The study was made on the Boston Floating Hospital during the summer of 1914, and while we regret that the work has not extended over more than one summer, we feel that our observations should be recorded. The hospital provides an ample supply of material, and a well equipped laboratory. A spirit of co-operation on the part of the staff prevails that goes far towards making the work a success.

Infectious diarrhea is characterized by more or less fever and prostration, tenesmus, and the passage of an increased number of stools. These

stools contain mucus, and frequently blood and pus. A Gram-stained preparation made from the feces shows pus cells and bacteria, the majority of which are short Gram-negative rods lying free or in leucocytes and surrounded by a clear zone resembling a capsule. In addition, the stools have a characteristic odor that is recognized by those who have had considerable experience in examining them. The disease is an important one, in Boston at least, as it is very prevalent in the summer months, and the mortality among the hospital cases rises to between 40 and 50%.

The association of organisms of the dysentery group with these cases was first noted by Duval and Bassett¹ in 1902. They found dysentery bacilli in the stools of forty-two out of fifty-three cases examined. In 1904 was published "The Bacteriological and Clinical Studies of the Diarrheal Diseases of Infancy from the Rockefeller Institute of Medical Research." The laboratory studies were made by several workers under the direction of Dr. Flexner, in a number of eastern cities of the United States, and while the results of the different observers vary considerably, the dysentery bacillus was found in 63.2% of 412 cases examined. The work of Weaver and Tunnicliff,² Wollstein³ and Kendall⁴ in this country, and of Leiner,⁵ Anché and Compana,⁶ Gildemeister and Baerthlein,⁷ Siegel,⁸ Bauer, Ellenbeck and Fromme,⁹ Weihe and Schürer¹⁰ Baerthlein and Howard,¹¹ and others in Europe, shows that the dysentery bacillus is found widely distributed in association with these cases. Immune substances such as agglutinins and complement fixing-bodies for the dysentery bacillus, have been found in the blood of these cases by a number of observers.

Tissier,¹² Klein,¹³ and Kendall¹⁴ have shown in certain cases which are clinically infectious diarrhea, that spores of organisms belonging to the groups of *Bact. welchii* are present in apparently increased numbers. The last observer found that a certain percentage of cases from which he was unable to isolate dysentery bacilli, passed stools, a small portion of which inoculated into milk and the milk heated for twenty minutes at 80° and then incubated, caused a "stormy fermentation" in this medium. It is stated that stools showing dysentery bacilli and those from normal cases did not give this reaction. These cases are said to improve on a diet of buttermilk and to do badly on a high carbohydrate diet, while the cases of infection with the dysentery bacillus are said to react in the opposite manner. He concludes that organisms of the *Bact. welchii* group are the etiologic factor in cases giving this reaction, and says that the number of these cases varies from year to year. So far as we have been able to learn, no immune bodies have been demonstrated in the blood of these patients and very few cultural studies on the organisms isolated have been published.

In 1897, Booker,¹⁵ working in Baltimore, studied a series of these cases and decided that *B. proteus vulgaris* was the cause of the disturbance, and for the last few years Metchnikoff¹⁶ and his pupils have been working on this organism as the cause of summer diarrheas in infants. They give only a very brief description of their cases and state that blood and pus were present in the stools in only a few instances, so it is evident that many of their cases cannot be classified as infectious diarrhea as it is understood in this country. They seldom find *B. proteus vulgaris* on plates of Conradi-Drigalski medium made directly from the feces, but isolate it by making a stab culture from the stool into gelatine, and within from twenty-four to forty-eight hours transferring a loop of the liquefied gelatine to the condensation water of an agar slant. The greater motility of *B. proteus vulgaris* enables it to climb onto the surface of the slant more rapidly than the other organisms, and if it is present, it is often isolated in pure culture at the end of twenty-four hours. Metchnikoff's work has extended over a period of five years, and during this time he has examined two hundred and eighteen stools from cases of summer diarrhea and has isolated *B. proteus vulgaris* in two hundred and four cases. He only mentions having examined six normal stools and found this organism present in two of these. In thirty-three stools that were slightly abnormal, he found it present in eighteen. Rabbits only a few days old and young chimpanzees, when fed the stools from diarrheal cases, developed a severe diarrhea, and cultures from their intestines showed *B. proteus vulgaris* to be present in great numbers. Metchnikoff does not mention having isolated the dysentery bacillus from any of his cases, but Bertrand,¹⁷ who studied fifty-five diarrheal stools and found *B. proteus vulgaris* in all, isolated the dysentery bacillus in fifteen cases. From the stools of twenty-four cases whose digestive tracts were apparently normal, the latter observer isolated *B. proteus vulgaris* only twice and the dysentery bacillus four times.

Morgan¹⁸ has studied a very interesting organism which he regards as a factor and perhaps the most important one in the infectious diarrheas found in England. From one hundred and twelve cases that were studied, this organism, known as *Morgan's bacillus No. 1*, was isolated on MacConkey's bile salt neutral red agar plates in forty cases, while dysentery-like organisms were found only five times. Agglutinins for the Morgan bacillus were not found in the blood of cases from which it was isolated. When cultures of this organism were fed to young rats, a severe diarrhea, followed by death, resulted.

With this brief review of some of the more important papers bearing on the organisms under consideration, we will give the results ob-

tained in our search for them in the series of cases studied.

The stools were passed into clean but not sterile pads, and as soon as possible were sent to the laboratory, where the various media were inoculated at once.

B. dysenteriae. For the isolation of the dysentery bacillus a suspension of the stool was made in bouillon and streaked over the surface of previously prepared Endo plates containing two per cent. of agar. After from sixteen to twenty hours' incubation, the plates were examined and suspicious colonies transferred to bouillon, and after five hours' incubation, transfers from the latter were made to two tubes of Hiss semi-solid media, one containing lactose, and the other mannit. Lactose was used, since occasionally cultures from colonies resembling dysentery on the Endo plates were found to produce acid in lactose, these being as a rule cocci. After these tubes had been incubated over night, the bouillon cultures whose sub-cultures showed growths characteristic of dysentery, were used for agglutination. The macroscopic test was used and was made by mixing one cubic centimeter of the culture with one cubic centimeter of a 1-500 dilution of anti-dysentery "Flexner" (mannit-fermenting strains) horse serum obtained from the Rockefeller Institute for Medical Research. This serum in a dilution of 1-1000 caused a complete agglutination of the mannit-fermenting dysentery bacilli after the tubes had been incubated for two hours and then allowed to stand in the cold for twenty hours.

The colonies of the dysentery bacillus on Endo plates are circular, translucent, and resemble drops of paraffine from one to two millimeters in diameter. While these organisms apparently grow readily on this medium, the number of colonies found in any one case was never very great, and oftentimes we failed to get them after repeated trials, though we were practically convinced from the appearance of the case that they were present in the feces. Repeatedly, the diagnosis was made on sub-cultures from the only dysentery-like colony on the plate. In two instances we were unable to isolate dysentery bacilli from the feces, in four separate attempts, yet they were obtained with ease at autopsy from the mucosa of the large intestine. In another case that clinically was infectious diarrhea and where the blood culture showed dysentery bacilli, we were unable to isolate these organisms from the feces though seven attempts were made.

Duval and Bassett¹⁹ state that for the isolation of the dysentery bacillus, the media should be *distinctly acid to litmus* and they further say, "Should the reaction be neutral to litmus, the difficulty of isolation of *B. dysenteriae* is very much increased; and in the presence of an alkaline reaction, isolation is rendered almost impossible." Should this be true, it is not surprising that in this day of selective media (that are always alkaline to litmus) the dysentery bacillus

is so seldom found. This, together with the apparent scarcity of the organisms in the feces and the fact that a negative report is often given after one examination, may account for their being missed in a certain number of cases. It has been our experience that while this bacillus is very difficult to isolate from the stools, with the method we used, we could readily isolate it from the mucosa of the large intestine after death. We made a few attempts to isolate it directly from the mucosa of the rectum during life by the help of the proctoscope, but were not successful. A careful comparative study of the methods of isolation of the dysentery bacillus and an attempt to get some good "enrichment medium" is greatly needed, and we regret that the pressure of other work prevented our taking up this problem.

During the summer, ninety-one cases were diagnosed clinically as infectious diarrhea, but in twelve of these we did not have an opportunity to make a careful bacteriological examination of the stool. Of the remaining seventy-nine cases, fifty-four, or sixty-eight per cent, showed dysentery bacilli. Many of the cases that were negative entered the hospital after they had been sick some days, and in some instances two weeks after the onset of the disease. We feel certain that many of them had dysentery bacilli in their stools, though we were unable to isolate them. The blood of these cases should have been tested for agglutinins, but lack of time prevented our making these tests.

Not a single culture of the Shiga bacillus was isolated. All the infections were due to organisms of the mannit-fermenting group of dysentery bacilli and the majority of the cultures, sixty-eight per cent, belonged to the Hiss Y type. That is, they formed acid in media containing dextrose and mannit, but not in lactose, saccharose, maltose, and dextrin. The remaining cultures were about equally divided between the Strong and the Flexner types. This differentiation of the mannit-fermenting dysentery bacilli into groups is very unsatisfactory, as the cultures vary so in their ability to attack the higher carbohydrates. Intermediate forms between each two of the groups are common and it is difficult to classify them correctly. The organisms that ferment saccharose and maltose tend to lose this property and then would come under the Hiss Y group. This has occurred with several of our cultures and also with the "Flexner-Harris" culture that has been in our laboratory for a number of years.

The stools of twenty-eight cases, with a diagnosis of diarrhea due to indigestion, were all negative for dysentery bacilli. In marked contrast to the cases of infectious diarrhea, the Gram-stained preparations from these stools showed few or no leucocytes and a predominance of organisms that were positive to Gram.

The evidence in favor of the dysentery bacillus as the cause of infectious diarrhea in infants

is its association with the majority of cases, the abundance of these organisms in the mucosa of the large intestine in acute cases, and the development of immune bodies to this organism in the blood of patients with this disease. While it has occasionally been found in the stools of individuals with an apparently normal digestive tract, these persons usually give a history of a previous diarrhea or an association with a case of this disease. The fact that it is apparently absent in a certain percentage of typical cases may be accounted for in some of the cases by the difficulty of isolation of the organisms, the use of unfavorable media, or to the examination being made rather late in the course of the disease.

Bacterium Welchii. The medium used in determining the presence of this organism was sterile fat-free milk in test tubes, the depth of the fluid being approximately six centimeters. A loop of the feces was transferred to the milk and emulsified by rubbing against the sides of the tube, after which the tube was immersed in a water bath at 80° C. for twenty minutes, and then incubated at 37° C. for twenty hours. At the end of this time the milk in some tubes was unchanged, in which case the reaction was said to be negative; in others, there was a solid coagulum, a smear from which showed organisms having the morphology of *Bact. welchii* when the reaction was said to be questionable, or there was the so-called "stormy fermentation," which was said to be a positive reaction. We fully realize that this is at best only a qualitative test for spores of gas-producing organisms, and while the organisms may have the morphology of *Bact. welchii* they should be isolated and studied, but we had neither the time nor the facilities for doing this work.

Simonds²⁰ has studied a number of strains of *Bact. welchii* and subdivides them into four groups, according to their action on glycerin and inulin. In the few cultures from infants' feces that were studied, those from diarrheal stools do not differ from those of the normal infants.

The results of the tests made on the stools from cases of infectious diarrhea and on those from various other cases are given in Table I.

Clinical Diagnosis.	Number of Cases.	REACTION.					
		Negative No.	Negative %	Doubtful No.	Doubtful %	Positive No.	Positive %
Infect. diarrhea.	53	35	66	12	23	6	11
(Dysentery bacilli found.)							
Infect. diarrhea.	37	19	51	11	30	7	18
(Dysentery bacilli not found.)							
Indigestion with diarrhea	34	16	47	9	26.4	9	26.4
Malnutrition	14	5	36	5	36	4	29
Normal	13	2	15	6	46	5	38

It will be seen that while this reaction in milk is produced by a certain number (11%) of cases showing dysentery bacilli, it is given by a greater number of cases of indigestion (26.4%), and by a still greater number (29%) of cases of malnutrition. In normal stools it was found with the greatest frequency, and while the number here recorded is small, the observations are confirmed by others made some years ago by one of us working under the direction of Dr. Theobald Smith and by the work of Knox and Ford,²¹ who found *Bact. welchii* in the stools of eighteen children with normal digestive tracts. This organism is an inhabitant of the digestive tract of normal man and many animals, is frequently found in milk, and has been found by us to be present in the "Eiweiss" milk that has been recommended as a treatment for these cases. It is difficult to understand how an organism having such a wide distribution and being an inhabitant of the normal digestive tract can be the cause of this condition, and we agree with Knox and Ford that sufficient evidence that *Bact. welchii* is the cause of infectious diarrhea in children has not been produced.

In order to say that *Bact. welchii* is a possible cause of infectious diarrhea one should be able to show repeated negative examinations for the dysentery bacillus in the stools and negative immune-reactions for this bacillus in the serum. In addition, demonstration should be made by plate cultures that the spores or the vegetative forms of *Bact. welchii* were present in greatly increased numbers, and immune-bodies to this organism should be found in the blood. It might also be that cultural differences could be found between the organisms from cases of infectious diarrhea and those from normal individuals.

The obtaining of a "stormy fermentation" in milk inoculated with feces and then heated does not indicate that *Bact. welchii* is present in increased numbers, for we have shown that eight spores will produce this change in milk and a milligram of feces from a normal infant often shows many times this number of spores of this organism.

Early in the disease of infectious diarrhea the reaction for *Bact. welchii* is usually absent, but it appears after the acute stage has passed. This may account for the statement that cases showing this reaction usually recover, or it may be that this organism has an action antagonistic to the dysentery bacillus.

B. Proteus Vulgaris. For the isolation of this organism, stab cultures were made into gelatine from the suspension of the stool in bouillon, and after several days' incubation, provided the gelatine was liquefied, attempts were made to isolate it by transferring a loop of the fluid medium to the condensation water of slanted semi-solid media. Thirty-one cases showing dysentery bacilli were examined in this way and in twenty-one of these there was no liquefaction of the

gelatine, so we have no evidence that *proteus* was present. In the ten cases where the gelatine was liquefied the organisms isolated in three cases belonged to the group of *B. coli*; in three to the *B. cloacae* group; and in four to the *B. proteus vulgaris* group. We, therefore, conclude that *B. proteus vulgaris* is frequently absent in cases of infectious diarrhea, and we have no evidence that it plays any part in the process. Its association with the more simple diarrheas is a subject that we will not attempt to discuss.

Morgan's Bacillus No. 1. This organism was isolated from Endo plates three times where dysentery bacilli were also present and six times where we were unable to isolate the latter organism. It is an extremely interesting organism from a bacteriological point of view as it attacks the hexoses forming acid and gas, but has no action on the di- or poly-saccharides or on the alcohol mannit. While it may play some part in the disease, we have no evidence that it is the primary cause of the trouble.

The same may be said of the organisms of the para-typhoid group and of *pyocyanus* and the streptococci that are encountered so frequently. They must modify the disease of infectious diarrhea in one way or another, but we regard them as secondary invaders that multiply on account of the abnormal conditions produced by the dysentery bacillus. The part they play in the disease can be determined only by the most careful quantitative examinations of the stools and of the contents of the digestive tract at various levels, immediately after death, correlated with careful clinical observations. The study of the spontaneous diarrheas that occur in the lower animals, especially the disease that so frequently affects monkeys, should also throw light on this disease of children.

CONCLUSIONS.

1. In order to isolate the dysentery bacillus from the stools of cases of infectious diarrhea, repeated attempts often have to be made, and the number obtained may be very few.

2. Dysentery bacilli, of the mannit-fermenting type, were isolated from sixty-eight per cent. of the seventy-nine cases studied.

3. Organisms of the *Bact. welchii* type are occasionally associated with dysentery bacilli, but they are found more frequently in the cases of simple diarrhea and still more frequently in normal stools.

4. We have no evidence that *Bact. welchii*, *B. proteus vulgaris*, *Morgan's bacillus No. 1*, the para-typhoid bacilli, or *B. pyocyanus* are the cause of infectious diarrhea, though they probably influence the course of the disease that is apparently started by the dysentery bacillus.

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A NOTE ON THE INVASION OF THE BODIES OF INFANTS BY *B. DYSENTERIAE*.

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THE ISOLATION of dysentery bacilli from the blood culture made from an infant suffering from an acute attack of infectious diarrhea, made it seem worth while to study a series of cases, in order to determine the frequency of the invasion of the body by this organism. In the text-books one finds the statement that this is a rare occurrence, but in the literature there are a number of cases reported of positive cultures from the blood or from the organs.

Rosenthal,¹ in fifteen autopsies on adults, found dysentery bacilli in the liver and heart's

FINDINGS IN CULTURES MADE AT AUTOPSY

Hospital Number.	Age.	Duration of Disease.	Clinical Diagnosis.	Dysentery Bacilli Isolated from Stools before Death.	AUTOPSY.	
					Time Post-mortem.	Pathological Diagnosis.
1641	10 mos.	35+ days	Inf. diar.	Yes	9 hrs. 45 min.	Slight fol. colitis
1692	11 mos.	13 days	" "	Yes	45 min.	Membranous colitis.
1765	10 mos.	10 days	" "	Yes	15 min.	Membranous colitis
1731	2 yrs.	16 days	" "	Yes	25 min.	Follicular colitis
1775	4 mos.	9 days	" "	No	30 min.	Membranous colitis
1788	8 mos.	9 days	" "	Yes	40 min.	Follicular ulcerative colitis
1738	21 mos.	16 days	" "	Yes	60 min.	Follicular ulcerative colitis
1699	3 mos.	2 days	" "	Yes	105 min.	Follicular ulcerative colitis
1793	7 mos.	20 days	" "	No.	75 min.	Ulcerative follicular colitis
1777	8 mos.	19 days	" "	Yes	15 min.	Memb. ule. follicular colitis
1850	10 mos.	14 days	" "	Yes	10 min.	Slight ulcerative colitis
1842	4½ mos.	Not recorded	" "	Yes	2 hrs.	Ulcerative follicular colitis
1895	3 mos.	7 days	" "	Yes	15 min.	Membranous ulcerative colitis
1908	20 mos.	8 days	Intoxication	No.	95 min.	Membranous ulcerative colitis

blood in one case. Aveline, Boycott, and McDonald² report one case, in an adult, where dysentery bacilli of the mannit fermenting group were isolated from the spleen. Mühlmann³ found dysentery bacilli in the liver three times and in the spleen once. Brückner⁴ found organisms of the mannit fermenting type in the liver of an adult. Darling and Bates⁵ isolated the Shiga bacillus from the peripheral blood of an adult on the seventh day of the disease.

The reports of the invasion of the body of infants by the dysentery bacillus are more numerous than those on adults. Duval and Bassett⁶ found them in the liver in one case. Howland⁷ made cultures from the organs of eight cases and did not succeed in finding the dysentery bacillus in a single instance. Knox and Schorer⁸ found them in the liver in two cases. Kendall⁹ isolated the Shiga bacillus from the blood of an infant on the sixth day of the dis-

ease. Gildemeister and Baerthlein¹⁰ found dysentery bacilli of the mannit fermenting group in one case, and Baerthlein and Howard¹¹ found the same type of organisms in the liver or spleen of five cases.

Most of the writers do not state the number of cases examined, only reporting the positive results, and in many instances the type of organisms found is not given. There are only two instances of positive blood cultures, and in both of these the infection was due to the Shiga bacillus.

Early in the season of 1914 on the Boston Floating Hospital, a male baby with a provisional diagnosis of typhoid fever, entered on the service of Dr. Young. There was marked prostration, a temperature of 105°, and the stools were not those of infectious diarrhea. The onset of the trouble began two days before entrance. On the third day of the disease a blood

FROM CASES OF INFECTIOUS DIARRHEA.

BACTERIOLOGY OF				
Liver.	Spleen.	Heart's Blood.	Ileo Cecal Lymph Node.	Mucosa of Large Intestine.
B. Coli group	B. Coli group	—	B. Coli group	Dysentery bacilli
Cocci	Cocci	Cocci B. Coli group	Cocci	B. Coli group
Sterile	Pyocyanus	Pyocyanus	B. Coli group	Dysentery and pyocyanus
Sterile	Cocci	Cocci	Cocci	B. Coli group. Cocci
Sterile	Sterile	Sterile	—	Dysentery
Sterile	Sterile	Sterile	—	Dysentery
Sterile	Sterile	Para-typhoid	Sterile	Para-typhoid
Sterile	Sterile	B. Coli group	B. Coli group	Dysentery
B. Coli group	B. Coli group	B. Coli group	B. Coli group	Dysentery and pyocyanus
Sterile	Sterile	Sterile	B. Coli group	Dysentery
Sterile	Sterile	B. Coli group	Para-typhoid	Dysentery
Sterile	Sterile	B. Coli group	Growth not dysentery	Dysentery
Sterile	Sterile	Sterile	Sterile	Dysentery
B. Coli group	B. Coli group	—	Sterile	Dysentery

culture was made, and much to our surprise *B. dysenteriae* was isolated. In order to be sure of our findings, cultures were made a second time from the blood diluted with bouillon and a second strain of dysentery bacilli was isolated. Both of these cultures were agglutinated by anti-dysentery serum and in their sugar reactions corresponded to the Flexner type. That is, they form acid from dextrose, mannit, maltose, saccharose, and dextrin.

The patient soon passed stools that were characteristic of infectious diarrhea and after a long illness eventually recovered. Seven attempts were made to isolate dysentery bacilli from the dejecta, but they were never successful.

Blood cultures were made from eleven other cases of diarrhea, six of which had dysentery bacilli in the stools, the other five being clinically infectious diarrhea, but the organisms were not found in the dejecta. The cultures were all made a number of days after the onset and were all negative for dysentery bacilli and all but two were negative for all organisms. These two showed a coecus that may have been a contamination from the air.

In addition to the blood cultures, fourteen cases were autopsied soon after death, and a bacteriological study was made of the various organs. In making cultures the surface of the organ was seared and a piece of tissue the size of a bean was transferred to bouillon. As soon as the cultures showed growth, pure cultures were obtained and the organism was studied. Before an organ was said to be sterile, transfers were always made to a tube of sterile bouillon, even though there was no clouding of the original culture. The organisms classed as belonging to the *B. coli* group were motile and formed acid and gas in lactose, but their action on the other carbohydrates was not studied.

It will be seen by the results given in the table that while the liver and spleen of these cases often contained organisms, the dysentery bacillus was never found there.

Some few attempts were made to study the distribution of dysentery bacilli in the digestive tract. They were never found in the mucosa of the stomach, duodenum, or jejunum, but were abundant in the wall of the lower portion of the ileum and throughout the large intestine. The failure to find them in the three cases tabulated was probably due to the fact that plate cultures were not made from the suspension of the mucosa, but we depended upon streak cultures made on agar slants. The dysentery bacilli from all of our cases belonged to the mannit fermenting group.

SUMMARY.

B. dysenteriae of the mannit fermenting group has been demonstrated in the circulating blood of an infant suffering from infectious diarrhea. Eleven blood cultures made from other cases of diarrhea and cultures made from the organs of fourteen cases were all negative for

dysentery bacilli, and the one positive finding is probably an accidental invasion rather than a usual feature of the disease.

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Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

MEETING OF MARCH 26, 1915, HELD AT THE BOSTON MEDICAL LIBRARY.

The President, Dr. E. M. BUCKINGHAM of Boston was in the chair.

The following papers were read:—

1. The Management of Breast Feeding, with case reports.* C. K. Johnson, M.D., Burlington, Vermont.
2. Air, Water and Light as Curative Agents. Roland G. Freeman, M.D., New York City.

DISCUSSION.

DR. MAYNARD LADD: I have been asked to open this discussion, and there are one or two points that I would like to emphasize in Dr. Johnson's paper which are important. First, as to the weighing of the baby before and after nursing. I think that this is not done as often as it should be. By so doing we can secure a very accurate idea of the amount of milk which the child is getting, particularly in the early days, so that if the amount is insufficient we may give supplementary feedings until the breast milk comes in sufficient quantity to supply the needs of the child. If the supply is insufficient, the effect of the supplementary feedings on the mother is beneficial, for she is saved the anxiety which comes from seeing her child insufficiently nourished. This habit of weighing the child from time to time in the early days has given results now and then that have been rather surprising, especially with reference to the quantity of food that the new-born infant may occasionally take. I have frequently seen vigorous infants, nursing from the mothers with an abundant supply of milk, take from $3\frac{1}{2}$ to 4 and even 5 oz. at a feeding,—a much larger quantity, of course, than is desirable. I think that the cases in which the supply of milk is large and the child vigorous and taking a large quantity, are the ones likely to do best on the long intervals between feedings. These babies often do perfectly well on $3\frac{1}{2}$ and 4-hour in-

* See JOURNAL, page 278.

tervals, whereas the baby who is getting only 1 or 2 ounces at each nursing is not likely to go through that long interval without making his wants known.

Another point,—in regard to the analysis of the breast-milk. The analyses we get are often misleading. When we wish to get an idea of the quality of the mother's milk, especially in a case of disturbed digestion, we try to milk out with our fingers, or by means of a breast-pump a sufficient amount of milk for examination. Sometimes we exhaust the quantity in the breast by the withdrawal of 1 or 1½ ounces, and yet if we have previously weighed the baby before and after nursings, we find that it has taken from 3 to 4 ounces. There is no reason to believe that the large quantity of milk which the child gets will have the same chemical composition as the small amount which we have been able to withdraw artificially for examination. That is a point which should be borne in mind where we have to empty the breasts of nervous mothers. When their supply is small it is very difficult to get enough milk to make a fair sample of that which the babies are getting.

In regard to the diet of the nursing mother, the suggestion of Dr. Southworth of the beneficial results of corn meal gruel is certainly worth mentioning. It seems to me that it has some virtue over other cereals, and is worth trying, particularly in cases where the quantity of milk is lacking.

Mothers are sometimes very unfairly blamed for not nursing their babies. They should of course be encouraged to nurse to the extent of their ability, but there is no question that many must fail, in spite of our best efforts to preserve the quality and quantity of the breast-milk. The popular idea that every woman, who is milking, can nurse her child often leads to unjust criticism of the mother who has to put her baby upon substitute feeding because of the unavoidable failure of the natural supply.

Dr. JOHNSON (in closing): I fully agree with what Dr. Ladd has said in regard to weighing, only I should add to that that it is important to have more than one weighing in the 24 hours. The infant should be weighed after every nursing in the 4-hour period, for the amounts taken at the different nursings vary very greatly in quantity, from $\frac{1}{2}$ oz. at one feeding to 4 or more at the next, and so on.

Abstract of paper on

AIR, WATER AND LIGHT AS CURATIVE AGENTS.

By DR. ROWLAND GODFREY FREEMAN, New York: This paper emphasized the potency of air, water and light as curative agents and their great advantage in most cases over medicinal treatment.

It took up the sedative and stimulating effects of baths at different temperatures. Some of the results obtained by heliotherapy in France and Switzerland were reviewed and a plea made for a larger use of his treatment, particularly in tuberculous cases. Treatment of disease in well-ventilated rooms or preferably out of doors was then considered, with some consideration of the action of fresh air on the child; the method of carrying out such open air treatment, and finally the results of such treatment in tuberculosis, measles, pneumonia and abnormal conditions of the blood.

Dr. J. P. MORSE: I am very glad indeed to hear this paper of Dr. Freeman, and to hear him emphasize the advantages of real old-fashioned medicine. It seems to me that he ought to add good food to

air, water and light in the treatment of disease. I am very glad, also, to hear what he says about artificial ventilation, which in my opinion does not ventilate at all. It may surprise some of you, moreover, to learn that it is against the laws of Massachusetts to build a schoolhouse or a public hall without installing a special system of artificial ventilation. You have got to have it, whether you use it or not.

I must say that my experience makes me believe that, while fresh air is a good thing in bronchitis and croup, cold air is not a good thing in the said affections, and that cold air does make them worse. I have used the fresh-air treatment in pneumonia ever since Dr. Northrup brought it to our attention a number of years ago; in fact, I may say that I fought shoulder to shoulder with Dr. Northrup in the beginning, but I am not convinced, nevertheless, that the mortality in pneumonia in children has been diminished by the fresh-air treatment. It seems to me that it is very hard in comparing statistics to bring in bronchopneumonia for comparison, because it makes so much difference what is called bronchopneumonia. You may have a bronchopneumonia which is merely nothing more than a mild bronchitis, or you may have the very severe types of bronchopneumonia. As regards mortality, they are two different diseases.

Dr. E. M. BUCKINGHAM: With regard to the general effect of fresh air, I happened to have charge of the contagious wards of the City Hospital the winter before the opening of the present service; and the diphtheria ward was badly crowded, because of an extensive epidemic. About the first of February, I had moved to a piazza on every sunny day, as many patients as it would hold, an appreciable proportion of the whole, the patients spending the whole day in the open. I cannot now give statistics, but the effect on the general appearance of the service was marked and immediate, on some individual patients particularly so.

As to the effect of cold air on bronchitis, I would say that one of my duties many years ago was to arrange for out-patient clinics. One cold winter, I often found striking cases of sonorous râles and reserved them. It was very common, however, when the students arrived, and the child had been waiting for an hour, more or less, in a warm room, to find that these râles had disappeared completely. This happened so very often that there could be no accident about it.

Dr. J. B. HAWES: Dr. Freeman, in his valuable paper, has brought up so many interesting points that it is impossible to dwell upon them all. I was very glad to hear what he had to say upon the comparative uselessness of artificial systems of ventilation. I have felt very strongly for a long time that so-called "baked air," no matter how perfect the system which may conduct it into rooms, has lost a certain most important and vital quality.

I would also emphasize the importance of cold sponge baths in the morning, but would sound a note of warning in this regard. Among school children particularly, this is apt to be carried to an extreme, and the water is apt to be so cold as to do harm rather than good. It is important to see that the water is at such a temperature which will bring about a marked reaction. Water colder than this is certainly not beneficial.

That part of Dr. Freeman's paper which interested me most, was what he had to say concerning heliotherapy. Were it not for the photographs of

actual patients which Dr. Rollier has shown and from the accounts of patients who have been at Leysin, none of us, I think, would be inclined to believe the statements of the remarkable cures of tuberculosis which he has brought about. It is well to remember that, although this method of treatment has certainly been neglected in the past, and should be used infinitely more than it is here in this country, we cannot expect, under these conditions, the brilliant cures which Dr. Rollier has obtained. The climatic conditions here are too different. Not only is the amount of actual sunlight infinitely less, but the air is far denser and more moist. We must not forget that there are many, many factors involved in the cure of that most chronic of all diseases, tuberculosis. Heliotherapy will prove a valuable agent, but in using it we must not forget older and well tried methods.

Dr. Freeman spoke of two cases of tuberculous dactylitis in which he obtained remarkable results with heliotherapy after other methods had failed. At my clinic at the Massachusetts General Hospital, I have two young boys of four and six years, brothers, each of whom has a tuberculous dactylitis. These boys live at a considerable distance, in New Hampshire. They certainly do not come often enough for the tuberculin which I have given them to be an appreciable factor. They have not been under close enough supervision for me to carry out heliotherapy, and the hygienic advice which I have given them has involved nothing more than ordinary decent living. They both, however, have been apparently entirely cured under a few months of this regime. In other cases of tuberculous cervical adenitis in which Dr. Freeman stated that he had excellent results, I would call your attention to the figures of Dr. Freeman's fellow-townsmen, Dr. Dowd of New York, who has reported a series of cases of this condition in which he has had unbelievably good results from the so-called radical operation. In my own clinic at the Massachusetts General Hospital during the past five or six years, I can show a fairly large series of most excellent results which I can attribute only to the use of tuberculin, conservative surgery, and good hygiene.

I am very glad, however, that Dr. Freeman has emphasized the value of heliotherapy, and feel that it will distinctly increase our armament in combating this disease.

DR. F. B. TALBOT: I was very much pleased to hear Dr. Freeman's paper and I have been interested in every word that he has said. At the Massachusetts General Hospital we have a very small, dark and dirty ward. Late each spring, this ward is moved out into tents by a street which is noisy and dusty and dirty. The principal difference in the two wards is that one is out of doors and the other is indoors. We have been very much surprised to see how well the babies do in the tents, out of doors. Our only trouble has been with the very poorly nourished babies during the cold nights, when it is sometimes difficult to keep them warm. I was particularly interested in what Dr. Freeman said about the use of water. I believe that one of the most serious conditions that we have to deal with in children who are vomiting or who are having diarrhea is dessication of the tissues. When the tissue juices get concentrated, the normal functions of the body cannot act in a normal way and many children, I believe, have died merely because they have not had enough water.

DR. FREEMAN (replying to Dr. Place): They are all improved by fresh air, if it is not dusty air. I think that those children should be kept out of strong wind and dusty out-of-door air in stormy weather—they can be out any day excepting a blustery, dusty, dirty day. I think the out-of-door treatment always improves them.

DR. F. P. DENNY: I should like to ask Dr. Freeman how much in heliotherapy is to be attributed to the bronzing of the skin from the effects of the sun and how much to the exposure of the body to cold air. It seems to me we have two very radical things and it is hard to decide which is the more important. There certainly must be a great loss of heat in those children with their bodies exposed.

DR. MAYNARD LADD: May I ask Dr. Freeman if his mortality of 14% in bronchopneumonia at the Roosevelt Hospital included the bronchopneumonias which are so frequently secondary to diphtheria, pertussis, scarlet fever, etc.; and whether such cases were admitted to the hospital?

DR. FREEMAN: In regard to the first question, I imagine that the advantage of heliotherapy is in the sun's rays. Those who are in favor of this treatment like to see the skin well tanned, as they seem to get better results where the skin is well tanned. Whether this is important or not, I do not know.

In reply to the second question, I would say that few of those cases were complicating the communicable diseases, because we will not take these cases into the hospital if we know it, for fear they may spread the disease in the wards.

Book Reviews.

Alveolodental Pyorrhea. By CHARLES C. BASS, M.D., and FOSTER M. JONES, M.D. Philadelphia and London: W. B. Saunders Company. 1915.

The variety of literature, which within the past ten years has appeared on the subject of pyorrhea alveolaris, and the variety of names which has been given to this important condition, are evidence that the disease is thus far not completely understood nor its prevention and treatment fully determined. The present monograph, like others that have been reviewed in previous issues of the JOURNAL, attacks the subject from a new standpoint, regarding the disease as a specific infection by the *entameba buccalis*. The history, etiology and pathology of the condition are successively discussed, and its symptomatology, diagnosis, treatment and prophylaxis outlined. Essentially the prophylaxis depends on the avoidance of trauma to the gums and the daily rinsing of the mouth with a solution of fluid extract of ipecac or of emetin. Whether or no the conclusions reached by the authors are definitive, time alone will determine, but in any event the work seems a valuable contribution to the study of the subject. It is well illustrated with forty-two figures in the text.

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THE ILLNESS OF SIR WALTER SCOTT

In the issue of the *Edinburgh Review* for January, 1913, appears an interesting discussion by the librarian of the Royal College of Surgeons of the illness of Sir Walter Scott, which the author himself describes as gastric cramp, but which at the time was diagnosed as gallstones. This article is written in conjunction with the publication of the Scott-Baillie letters, which were first given to the public at that time.

Dr. Matthew Baillie, for many years Scott's private physician, is described as a model of this type, one of the finest of a bygone school. In August, 1818, while in attendance on King George III at Windsor Castle, Dr. Baillie beguiled his leisure by writing his personal memoirs, in which he speaks particularly of his lifelong friendship with Sir Walter. Baillie died in 1823, of what was then called consumption, though from the description of his symptoms it seems much more likely to have been malignant disease.

Of Scott's illness we read at length in Lockhart's familiar biography. It manifested itself first acutely on the night of March 5, 1817; and in February, 1819, Sir Walter suffered from so severe an attack of pain that his immediate death was expected. Among the Scott-Baillie letters from the collection in the Library of the Royal College of Surgeons, to which they were presented by Dr. Baillie's son, is the following joint communication to Mrs. Baillie by Scott and his daughter, later Mrs. Lockhart. This letter, recently first published in the *Edinburgh Review*, and reprinted in the issue of the *British Medical Journal* of February 8, 1913, apart from its literary interest, constitutes a piece of valuable clinical symptomatic evidence of the nature of Scott's malady:—

"My dear Mrs. Baillie

I am sorry to be obliged to give you a very poor account of Papa's health, the spasms never leaving him for more than twenty-four hours at a time. We took the liberty of making Doctor Clarkson who attends him here write his ease to your brother (Dr. Matthew Baillie) to request his advice. Papa would have wrote himself, but he has not been able to write for some time, for he has really been dangerously ill and is still very very weak, and is so very much disheartened with the constant return of the spasms that he is quite miserable, but we are in great hopes that the spasms are not so dreadfully violent these two last days. That is the only thing that comforts us. He sends you a letter from Mrs. Siddons (daughter-in-law of Sarah Siddons) he ought to have sent you long ago, but he has been so ill that he quite forgot it.

Dear Miss Baillie, I hope soon to be able to write you a better account of Papa than I can do at present and I hope that you will excuse the shortness of this letter, but I have so few minutes to spare from attending Papa and so tired from being up almost every night that I must conclude with subscribing myself in haste

Very affectionately yours

CHARLOTTE SOPHIA SCOTT.

Abbotsford, Friday 26th, 1819.

(The following is in Sir Walter's handwriting:)

Turn over

Dearest friend

I cannot let Sophia's dolorous epistle go without adding two lines to say that I think I am now getting really better. The combat between the medicines and the disease having been carried on entirely at the expence of my body corporate I feel after so long and obstinate a conflict as I suppose the town of Saragossa did when it had been so desperately attacked and defended. I have no apprehension of any great danger, but till of late the agony was intolerable and lasted six, seven, and eight hours without in-

termission. The fever is now much milder. I have reason to thank God for placing me in circumstances so much above my deserts in every respect and am much too grateful for the blessings which have attached themselves to me in every respect than disposed to murmur under the natural evils of humanity. Kind love, my dear friend, to your sister, Mrs. Baillie, the Dr., and believe me always, well or ill, most affectionately yours

W. S.

" . . . My hours have been divided betwixt pain and stupidity."

In April, 1819, Scott again suffered from a violent attack of pain and again believed himself about to die; but upon the amelioration of his symptoms, he sent the following letter to Dr. Baillie describing his experience:—

"Dear Sir,

The Greeks were, I believe, allowed to consult Esculapius by proxy while they were patients, but on recovery were expected to pay their grateful thanks in person. I need not say how much I was obliged by your kind attention to Mr. Clarkson's letter, which gave us all much confidence, which in the extremity of pain and subsequent exhaustion I really could not have drawn from less authority than yours.

The quantity of opium and anodynes of all kinds, I was obliged to swallow during these paroxysms, often with little effect, was truly frightful. But, thank God, the last returns of the pain have been of a description so mild as to yield to the hot bath alone. I begin to sleep at nights, and crawl out on my pony by day, and my bowels seem to be regaining their natural state. I had hoped to have seen you, Mrs. Baillie, and my excellent friends your sisters this spring, but that is now impossible. Some time in the year, however, I may come up for the purpose of getting my son settled in the army.

Believe me, my dear sir,

Very sincerely,

Your obliged and grateful servant,

(Signed) WALTER SCOTT.

Abbotsford, 17th April."

Throughout the remainder of his life, Scott continued to be afflicted periodically by these paroxysms of pain, presumably due to gall-stones, and indeed performed a large amount of literary work during periods of actual suffering. "The Bride of Lammermoor," in particular, was dictated during the intervals of mental activity following the administration of opium for these attacks. In his "Memories of Sir Walter Scott," edited by Mr. Basil Thompson, Mr. James Skene, a friend of the novelist, gives the following description of the latter's illness, which again presents valuable and vivid primary evidence of the nature of his attacks:—

"Under the infliction of a severe illness, Sir

Walter had for nearly two years to struggle for his life, and only the natural strength of his constitution at length enabled him to throw it off. But with its disappearance, although he was restored to health, disappeared also much of his former vigour of body, activity, and power of undergoing fatigue, while in personal appearance he had advanced twenty years in the downward course of life; his hair had become scanty and bleached to pure white, the fire of his eye was quenched, his step was more uncertain—he had lost the vigorous swinging gait with which he used to move—in fact, old age had by many years anticipated its usual progress, and had marked how severely he had suffered. The complaint, that of gall-stones, caused extreme bodily suffering. During his severest attack he had been alone at Abbotsford with his daughter Sophia before her marriage to Mr. Lockhart, and had sent to say that he was desirous I should come to him, which I did, remaining for ten days, till the attack had subsided. During the course of it, the extreme violence of the pain and spasmodic contractions of the muscles of the stomach were such at times that we scarcely expected that his powers of endurance could sustain him through the trial, and so much was he exhausted by some of the attacks as to leave us in frightful alarm as to what the result had actually been. One night I shall not soon forget; he had been frequently and severely ill during the day, and in the middle of the night I was summoned to his room where his daughter was, already standing at his bedside, the picture of deep despair. The attack seemed to be intense, and we followed the directions left by the physician to assuage the pain, which for nearly a full hour bid defiance to our best endeavours. At length it seemed to subside, and he fell back exhausted on the pillows; his eyes were closed, and his countenance wan and livid. Apparently with corresponding misgivings, his daughter at one side of the bed and I at the other gazed for some time intently and in silence on his countenance, and then glanced with anxious inquiring looks at each other, till at length I placed my fingers on his pulse, to ascertain whether it had actually ceased to throb. I shall never forget the sudden beam which brightened his daughter's countenance, and for a moment dispelled the intense expression of anxiety which had for some time overspread it, when Sir Walter, aware of my feeling his pulse, and the probable purpose, whispered with a faint voice, but without opening his eyes, 'I am not yet gone.' After a time he recovered, and gave us a proof of the mastery of his mind over the sufferings of the body. 'Do you recollect,' he said to me, 'a small round turret near the gate of the Monastery of Aberbrothwick and placed so as to overhang the street?' Upon answering that I did perfectly, and that a picturesque little morsel it was, he said: 'Well, I was there when a mob had assembled, excited by some purpose which I do not recollect; but failing in their original purpose, they took un-

brage at the venerable little emblem of aristocracy which still bore its weather-stained head so conspicuously aloft, and, resolving to level it with the dust, they got a stout hawser from a vessel in the adjoining harbour, which a sailor lad, climbing up, coiled around the body of the little turret, and the rabble, seizing the rope by both ends, tugged and pulled, and laboured long to strangle and overthrow the poor old turret, but in vain, for it withstood all their endeavours. Now that is exactly the condition of my poor stomach. There is a rope twisted round it, and the malicious devils are straining and tugging at it, and faith, I could almost think that I sometimes hear them shouting and cheering each other to their task, and when they are at it I always have the little turret and its tormentors before my eyes."

It is pathetic to realize that, less than a century ago, the later years of one of the world's greatest geniuses were tormented by a malady that modern surgery would easily and safely relieve. That in spite of this affliction he accomplished the enormous and brilliant literary labor of that period of his life remains, perhaps, one of the best evidences of the transcendence of his intellectual powers.

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blems of civilization. One may doubt even whether the reported decline in the consumption of alcoholic beverages among certain of the bellicose European countries either is as extensive as alleged or will continue under the conditions that must follow the cessation of hostilities.

As a matter of fact, perhaps the greatest shortcoming of all methods aimed at the prevention of inebriety is their failure to supply any adequate gustatory substitute for the great variety of pleasant alcoholic beverages to which mankind has so long been accustomed. Doubtless a certain proportion of drinkers consume these beverages solely for the sake of their stimulative effect. It seems probable, however, that a considerable number of persons, especially the moderate and convivial drinkers, whose motives are largely social and aesthetic, drink chiefly on account of the agreeable taste of the beverage which they consume. Now the suggestion has recently been made that for drinkers of this latter class, who are chiefly of the more intelligent type and would be quite willing to give up the stimulus of alcohol, a large number of agreeable substitutes for alcoholic drinks might be provided by the de-alcoholization of beers and wines, a process whereby the alcohol is almost entirely removed and the taste not affected.

The process of de-alcoholization, as described in an article by Mr. O. Overbeek, F.C.S., F.G.S., in the issue of the *Medical Press and Circular* for July, 1914, consists in blowing through the fermented liquor, at a temperature lower than that of the human body and in a suitably constructed plant, the waste gas produced during fermentation. This procedure leaves the resultant liquid unaltered in every respect, except for the removal of its alcohol, and may be continued until the alcohol is entirely removed, or may be checked at a point where the beverage contains only 1% or 2% of alcohol, the amount commonly found in fermented ginger beer and other so-called temperance beverages. The use of the waste gas of fermentation is adopted as a measure of economy; but carbonic acid gas from any other source, or indeed any neutral gas such as nitrogen, may be employed with the same effect.

Samples of beers and wine de-alcoholized by this method have been analytically and critically examined by the British government, which has found that the alcohol had been truly abstracted from these beverages, that it was not reproduced on keeping, and that the beverage itself was in

DE-ALCOHOLIZATION OF BEVERAGES AS A PREVENTIVE OF INEBRIETY.

In another column of this issue of the JOURNAL we publish an article by Dr. Irwin H. Neff on "The Practical Treatment of Inebriety" based on his experience at the Norfolk State Hospital. Since the establishment of such institutions devoted solely to the treatment of alcoholic inebriates, it is noteworthy that the improvement obtained in this class of cases by the application of special methods and by segregation has been more marked, rapid and permanent than when these patients were mixed with the inmates of other state institutions.

However great the progress of recent years in the treatment of alcoholism, it is nevertheless to be recognized that beyond, and far more important than, the treatment of the individual inebriate is the prevention of inebriety in the community. This problem for which so many different solutions have been suggested and attempted,—by prohibition, by restriction, by popular education,—must be regarded as still being far from an adequate settlement. It remains, in fact, one of the greatest present prob-

each case as brilliant and palatable as the alcoholic original.

"Wines of all descriptions, whether sparkling or still, can be de-alcoholized and yet sold in their ordinary state, the difference in flavor being almost imperceptible. In the case of very highly alcoholic wines, such as old port or sherry, the only effect is to lower slightly their somewhat spirituous taste. Perhaps the most marvelous effect accomplished by this process is the complete sterilization of the resulting liquid. After fifteen months a beer de-alcoholized to half the strength of ginger beer was found absolutely identical in spirit content, although no preservative whatever had been added. This is explained by the mechanical violence of the action of the gas as it is passed through. The CO₂ is driven through the circulating system with such violence that, not only is the whole of the liquid converted into a mass of froth whilst the action is taking place, but the delicate yeast cells, to which fermentation is due, become ruptured and killed. It is also probable than many superficial spores and cells are blown away by the gas in the form of microscopic dust from the thin sides of the fine bubbles produced. This process when continued for two hours and a half is sufficient completely to sterilize the liquid. It also carries away such other spores as may be present, into the large volume of water containing the preservative agent through which the gas has to pass in order to be deprived of its alcohol before it undertakes its next career through the liquid which is being acted upon."

If these statements be true it would appear that a method has been devised whereby a large number of alcoholic beverages may at once be deprived of the alcoholic content which makes them injurious and at the same time remain as palatable and attractive as before. Whether or not the de-alcoholization of high proof spirits is also possible remains to be determined. In any event the employment of de-alcoholized wines and beers as beverages would seem to be a possibility of definite value as a preventive of alcoholism inebriety.



ENLISTMENT OF CONSUMPTIVES.

THE problem of whether or not to recruit men who have had tuberculosis does not now present any great urgency to the United States Army medical officers, but it may do so at any time.

Of course there can be but little dissension when the general statement is made that candidates suffering from an active pulmonary condition should not be enlisted, no matter what the exigencies of the situation, but in regard to the so-called cured patients there must exist more difference of opinion.

Dr. L. Thieme, medical superintendent of the Leipzig Sanatorium in Voightland, published his views on this subject in the *Muenchener medizinische Wochenschrift* for March 16, 1915. By consulting the military records he found that 241 of his former patients were in the German army. These, presumably, had not been recognized as such by the recruiting officers, for the latter had rejected 621 of his former patients. Dr. Thieme states that these 241 represent about one-fifth of all his discharged male patients of military age and concludes therefrom that his sanatorium treatment is highly successful.

We are inclined to think, however, that this deduction is somewhat premature and a little too optimistic. It is quite conceivable that many of these phthisical soldiers will break down eventually under the rigors of the present war. In fact, Dr. Thieme admits that 28 of his former patients were accepted at first but broke down later.

Military life with all its stress and strain, especially when a country is at war, will hardly appeal to medical men as a proper occupation for consumptives who have at one time been sufficiently affected to require sanatorium treatment. There must also be considered the danger of contagion in a crowded camp, should the disease process again become active. Considering the immense population which this country could draw from in case of war, it would seem that recruiting officers would be justified, even in a great national emergency, in refusing applicants who had suffered from tuberculosis.



SANITARY CONDITIONS OF BOSTON STREETS.

WITH the movement on foot to improve the paving of the streets of Boston a good opportunity arises also to do something to improve the sanitary conditions at the same time. No better demonstration is needed than to walk through our streets on a windy day. Dr. Sachs of Nev-

York, in a lecture before the Academy of Medicine brought out some very pertinent facts in regard to the relation of the medical profession to street conditions. While his remarks were directed to conditions in New York, they may apply just as well to Boston.

As a city like Boston grows in population, special problems arise, and if we cannot lead, we can at least profit by results worked out for the public good in other cities. In regard to street conditions there seems to be a feeling of indifference. This may be due to the fact that the problem is divided between a number of departments. Nevertheless the streets cannot be kept clean unless all coöperate. Dustless sweeping should be enforced not only of the roadway but of the sidewalk. To walk down town on any of our main streets, even at 8.30 a.m., on a pleasant day means getting dust in the eyes, nose and mouth. The sidewalk in many sections is worse than the street. We cannot get rid of dirt entirely, but it can be minimized. The open garbage can in the alley is another menace. In warm weather it is a fly and disease breeder. It would seem that no argument should be needed to sustain the proposition that all garbage cans and wagons should be covered.

The street department often has to bear the blame of conditions for which it is not directly responsible but because its work is hampered by various influences. Blocking of streets by building material, destruction and obstruction of highways by public service corporations, impair efficiency and discipline among the employees of the cleaning and repairing departments.

Dr. Sachs shows that in one of the most congested districts of New York City, the East 5th street police district, where the health, police and street departments work together, the streets on a busy day were found to be in a high state of cleanliness. Sooner or later the public must think of this problem and the medical man will be called on for advice in order that best results with most economy may be obtained.

MEDICAL NOTES.

HOT WEATHER AND THE CITY'S HEALTH.—Figures issued by the New York Department of Health on July 31 showed that despite the hot weather of the past week, the death rate was .12 of a point lower than for the corresponding week of last year. This decrease in rate is equivalent to a saving of 13 lives. As compared with the

previous week, there was an increase of 29 deaths caused by the greater number of deaths from diarrheal diseases under five years. As might be expected, the deaths of infants under five years of age showed a rather sharp increase. The deaths of persons over 65 years, however, showed a very marked increase. The total for the 31 weeks of 1915 is 13,50 as compared with 14,28 for the same period of 1914. There were 1328 deaths in the City of New York during the past week with a corresponding rate of 11.94. The lowest rate was seen in the Borough of Richmond; the highest in the Borough of The Bronx.

HONORARY DEGREES TO PHYSICIANS.—The University of Edinburgh has recently conferred the honorary degree of LL.D. on Dr. W. A. Herdman, professor of zoölogy in the University of Liverpool, and on Dr. Arthur Thompson, professor of anatomy at the University of Oxford.

AWARD OF MEDALS FOR SCIENTIFIC EXHIBITS.—The following award of gold medals is announced for scientific exhibits at San Francisco:

"To the pathological departments of Stanford University and the University of Michigan; to the Indiana State Board of Health, for its exhibit on a public health campaign; to Drs. C. C. Bass and F. M. Johns, of Tulane University, for their exhibit on pyorrhea alveolaris and malaria; to Drs. Claud A. Smith and J. Witherspoon, on hookworm; to the pathological laboratory of the New York Lying-in Hospital, on the demonstration of the cultivation of human tissue *in vitro*; to Dr. Martin H. Fischer, of Cincinnati, on newer experiments in the physiology and pathology of kidney functions; and to Dr. J. T. Case, of Battle Creek, on lantern slides illustrating Roentgen-ray studies."

SMALLPOX CASE IN PLAINFIELD.—Report from Plainfield, N. J., states that a death from virulent smallpox occurred in that city on Aug. 5, the patient being a man brought that morning to the city from Metuchen. Extensive vaccination and quarantine of contacts has been instituted.

PREVALENCE OF MALARIA, MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID.—The weekly report of the United States Public Health Service for July 30, notes that during the month of June, 1915, there were reported 19 cases of cerebrospinal meningitis in Massachusetts; and in Mississippi, 5 cases of meningitis, 10,703 of malaria, 3,195 of pellagra, 7 of poliomyelitis and 536 of typhoid fever. During the same month there were in Ohio also 7 cases of poliomyelitis, 356 of smallpox, and 242 of typhoid. There were 103 cases of typhoid in Massachusetts and 220 in South Carolina.

PLAQUE IN ASIATIC COUNTRIES.—During the period from March 26 to May 20, 1915, there

were reported in Java 582 cases of bubonic plague, with 521 deaths; in Kuachi, India, 464 cases with 386 deaths between May 2 and June 5; and in Bagdad, from May 2 to 15, 418 cases with 293 deaths.

DEPARTMENT OF HEALTH, BUFFALO, N.Y.—The recently published report of the Department of Health of the city of Buffalo, N.Y., for the year ending December 31, 1914, is presented in a pamphlet of 230 pages with numerous tables of statistics and pictures of the infant welfare stations, dental dispensaries and tuberculosis schools. The organization of the department of health of that city consists of Francis E. Fronczak, M.D., as health commissioner, an assistant health commissioner, and 242 members of the following bureaus and divisions: bureau of vital statistics, of plumbing and drainage, of chemistry, of bacteriology, of sanitation, of food and drugs, of hospitals, of child hygiene, and the psychopathic bureau. The bureau of child hygiene includes the divisions of infant welfare, midwifery, children's institutions, medical and dental school inspection, and child labor. The total death rate for the city was 15.50 per thousand and the birth rate 27.77 per thousand. The principal cause of death was pulmonary tuberculosis, the total number dying from this cause being 633. The total number of deaths from communicable diseases was 1,172. One thousand five hundred and thirty-three children died under one year, of which number 439 died from diarrhea and enteritis. Four hundred and forty-four deaths were due to violence. As an exhaustive record of the very efficient health department administration of this city, the report is interesting and commendable.

FOOT AND MOUTH DISEASE IN ILLINOIS.—Report from Chicago on Aug. 9 states that several new cases of foot and mouth disease have been discovered among livestock in Wheeling, Ill. A five-mile quarantine district has in consequence been established about that town.

EUROPEAN WAR NOTES.

CHOLERA AND TYPHUS FEVERS IN AUSTRIA.—Report from Vienna, by way of Zurich and London, states that on Aug. 4 the total number of cases of Asiatic cholera in the Austrian Empire amounted to 629. From April 25 to May 8 there were reported 645 cases of typhus fever in Austria, mainly among soldiers, prisoners of war, and persons from Galicia.

A NEW ANTISEPTIC MIXTURE.—A press report from Paris on Aug. 5 states that Professor Landouzy has recently announced to the French Academy of Science that Dr. Alexis Carrel and Dr. Henry D. Dakin, of the Compiègne military hospital have used with great efficacy in the treatment of infected wounds an antiseptic mix-

ture of hypochlorite and carbonate of lime and boric acid. Future scientific confirmation of the value of this reported discovery will be awaited with especial interest.

RELATIVE DEATH-RATES OF GERMAN WOUNDED.

—In last week's issue of the JOURNAL we published a statement from the *Lancet* relative to the high death-rate prevailing among British wounded in the war. In the issue of the *Berliner Tageblatt* for July 10 appears the following tabulated statement of the relative death and recovery rates among the German wounded:—

	1914.	Returned to Service.	Deaths.	Recovered But Unfit.
August	\$4.8		3.0	12.2
September	88.1		2.7	9.1
October	88.9		2.4	8.7
November	87.3		2.1	10.6
December	87.8		1.7	10.5
1915.				
January	88.7		1.4	9.9
February	88.6		1.3	10.0
March	88.9		1.6	9.5
April	91.1		1.4	7.4
Average	88.5		1.9	9.6

STANDING OF THE AMERICAN RELIEF FUNDS.—On Aug. 10 the totals of the principal American relief funds for the European War reached the following amounts:—

	N. Y.	N. E.
Red Cross Fund.....	\$516,454.31	
Committee of Mercy.....	252,009.14	
Serbian Fund.....	120,542.56	
Polish Fund.....	54,400.75	\$49,578.05
Persian Fund.....	40,695.52	
St. George's Fund.....		10,823.44

BOSTON AND NEW ENGLAND.

MILK AND BABY HYGIENE ASSOCIATION.—It is reported that during the month of July, 1915, the Boston Milk and Baby Hygiene Association cared for 1960 babies in this city. The following physicians have been appointed in charge of the free clinics for well babies:—

Dr. Richard S. Eustis, Dr. John W. Hammond, Dr. Harry L. Rothblatt, Dr. W. W. Barker, Dr. Harold A. Gale, Dr. William W. Howell, Dr. Arthur B. Emmons, 2nd, Dr. Orville Chadwell, Dr. James K. Wardwell, Dr. K. G. Percy, Dr. Edwin T. Wyman, Dr. Mitchell Sisson, Dr. S. M. Pearl, Dr. S. W. Cornish, Dr. C. R. Draper, Dr. H. A. Durkin, Dr. H. Howard Flagg, Dr. Benjamin Friedman, Dr. Joseph I. Grover, Dr. Margaret Grogan, Dr. Lewis J. Hill, Dr. F. J. Larned, Dr. Z. R. Scott, Dr. Louis S. Silver.

HAEMORRHAGIC CATTLE SEPTICAEMIA IN BOSTON.—It is announced that two fatal cases of haemorrhagic septicemia among cattle in Bol-

ton, Mass., have recently been reported to the State Bureau of Animal Industry. Steps have been taken to prevent the spread of the disease.

EDUCATIONAL WORK OF THE STATE DEPARTMENT OF HEALTH.—The State Department of Health has announced that it is prepared to supply free of charge moving picture films portraying lessons in general health and hygiene such as the dangers of unsanitary living conditions, typhoid fever, neglect in the care of children. A lecturer will accompany the films and explain them. It is hoped that schools and other organizations will be interested in this way to carry out the plans of the department of health to educate adults, as well as children, in matters of general hygiene.

FUMIGATION AS A METHOD OF DESTROYING BACTERIA DISCONTINUED.—It is reported that the Boston Board of Health, through its chairman, has announced its abandonment of the practice of fumigating rooms which have been occupied by patients with contagious diseases such as diphtheria and scarlet fever. In the belief that such germs are soon destroyed by light and air and are not transmitted by inanimate objects, making fumigation useless and wasteful, the Board of Health believes that emphasis should be placed on the prevention of contagion through convalescents, whose bodies offer a congenital host for bacteria and who, in spite of repeated negative tests, often prove to be unsuspected carriers of the disease from which they have recovered.

MEETING OF THE MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.—At a meeting of the Massachusetts Association of Boards of Health at Pemberton, Mass., the subject of the control of tuberculosis was discussed from its legal side. A paper written by the late Chester Bryant, of the Haverhill Board of Health, urged the passage of laws providing boards of health with proper power to control the incorrigible consumptive. A committee was voted for, to arrange a more uniform system of departmental monthly and annual reports.

VALUE OF PUBLIC HEALTH NURSES.—In an interview published recently in the Boston daily press, Prof. Selskar M. Gunn, director of the recently established division of hygiene of the Massachusetts State Health Commission, is quoted as follows regarding the value of public health nurses in the community:—

"Of all the public agencies for saving life in Massachusetts, the most important is the public health or educational nurse. I have come to this opinion after a thorough analysis of the death rate and its causes in every town of the commonwealth. Any community can lower its death rate by employing public health nurses."

"No community of any size can hold up its

head unless it maintains a nurse to advise and help the mothers save their babies from the dangers of hot weather, heavy clothing, bottle feeding and dirty milk, indigestible food, bad ventilation, filth, flies and general ignorance of the needs of sanitary precaution. So many of the diseases of babies are preventable that the infant mortality rate is the sanitary index of the community.

"In Massachusetts the death rate should be greatly lowered in the next year. Of 53,286 deaths in this state in the last year, for which we have reliable statistics, 9,971 were of babies less than a year and a half old and nearly half were victims of preventable disease. Summer diarrhea carried off 2,682, pneumonia 1,597, whooping cough 168, measles 156, and tuberculosis 180. Under ideal conditions these deaths could have been prevented. In the same year diphtheria claimed only 41 and scarlet fever only 14 under one year old.

"One-fifth of all deaths in Massachusetts, however, are deaths of infants. The first year is the critical year. That the second summer is the most dangerous one is a fallacy. In the state statistics before me, I find that when summer diarrhea carried off 2,682 babies under a year old, only 395 died between the ages of one and two. The only diseases that show a greater mortality in the second year than in the first are measles and whooping cough. A mother greatly minimizes the danger from these two diseases if she protects her children from them during the first five years of childhood.

"It is evident, therefore, that the surest way to lower the state death rate is by saving the infants. In this work the nurse is, in my opinion, about five times as effective as the sanitary inspector. He gets into the shops and the back yards. The nurse gets inside the mother's heart.

"The city of Boston employs fourteen public health nurses. Their work is supplemented by that of nurses supported by numerous private and semi-public institutions and by milk and hygiene stations. In some Massachusetts towns women's clubs are paying the public health nurse. Too many towns and cities have not yet begun to realize the great value of her service."

Miscellany.

MEDICAL FEES IN THE SIXTEENTH CENTURY.

In the issue of the *Lancet* for June 5 is published a series of extracts from the household account books preserved at Belvoir Castle among the historic documents belonging to the Duke of Rutland, ranging in date from 1522 to 1700. These accounts not only throw light on local and family history, social customs, man-

ners of living and cost of food, drink and costume, but contain also numerous charges for medical attendance, indicating the range of fees charged in a wealthy noble family during the sixteenth century. The following are a few examples of these payments recorded to physicians and apothecaries and other items of more or less direct or remote medical interest.

"1528.—Payde, be my Lorde's comauende-
ment, to Doctor Freman, fysicion, xls.

1530.—Item, to Doctor Freman, fysician, xs.—
To Doctor Freman, fysician, for his paynes with
my Lorde Ros, xxc. Item, to Doctor Bartlott, by
my Lorde's comauende-
ment, vijs, vjd.—Item,
to Peerson the poticary for divers restoretyffes,
vijs, iiijd.

1532.—Item, geven in rewarde to the myddewif
and norys at the christenyng of Master
Hervie's childe, xxs.

1533.—Item in reward, the xij day of *Julii*,
to Roger Smyth poticary, for his paynes, takyn
with my Lord in his fevir, vijli, xiijs, iiijd; to
him for such stuff as he spent about my Lord
in the tyme of his sekeness, xxxijs, xd.—Item in
reward at the same tyme to Doctor Bartlet, xxxs.
—Item in reward to Doctoer Freman the same
tyme, xiijs, iiijd.—Item to a woman phisician at
Bingeham in the Vale, iijs, vjd.—Item to Roger
Smyth, poticary, for my daughter Anne, iijs,
iijd.

1536.—Item to Doctor Clement for lookyng to
my Lorde Roos when he was seke at Endyld,
xxx.—Item to the same doctor at another tyme
at Yorke Place, xs.

1537.—Item in reward to Master John the
poticary for ij glasses of oyle of almous and for
a medicen for my Lorde's chil dern for the
wornes at ij tymes, xs, xd.

1540.—Paide in reward to Doctor Bill commyn-
g to my Lord at Halywel, xxs.—Item payd
to Doctor Edwards for his reward, beyng with
my Lord Roos at Croxton in his sekeness, and
for his costes goyng to Cambrige for siv days at
vjs, viijd, the day, iijli.

1541.—Item, the xxvjth day of February, to
Mr. Leveret, the phisicion, for that he came to
my Lady then and tarried at Belvoier ij days,
xs.—Item, gyven in rewarde to Mr. Edwards,
phisicion, of Newarke, for his comyng to se Mais-
tres Margaret Paston when she was seke, vs.—
Item, gyven in reward to Mr. Leverett for myn-
stryng medecyns to my Lord Roos when he was
seke, xs; and for the like mynstryng to Mais-
tres Margaret Paston in her sekenes, xxijs, vjd.
—Item, payd for a pynte of aquawyte, xijd.

1542.—Gevyn to Doctor Augystyne at dy-
verse tymes (over and beside iijli, xs, in the
price of a gowne of damask) lxxvs.—Gevyn to
Doctor Buttes, xxijjs, vjd.—Gevyn to Doctor
Nicholas at dyverse tymes, vijli, xs, xd.—
Gevyn to Doctor Cromre at dyverse tymes (over
and beside xj yardes of damask for a gowne,
price iijli, xs), lxxvjs, xjd.—Gevyn to Doctor
Bill at ij tymes, xls.—Gevyn to Mr. Oliff, the

Kinge's surgiian, at diverse tymes (over and be-
side xj yardes of damask for a gowne, price
iijli, ljs, vjd), vijli, xiijs, vjd.—Paid by An-
thonie Digby for ypoeras when my Lorde was
syke, vjs, viijd.

1543. (Account of the executors of the will of
Thomas, Earl of Rutland re funeral expenses,
&c.)—For the charges of the stufe that was oc-
cupied about the searing of the corps, and to the
surgeon for his penes, as apperithe by Thomas
Disney's booke, xiijs; to the plummer for putty-
ing the corps in lead, iiijs, iiijd; to Doctor
Wendy for his paynes takyng about the seid
Erle in his siknes and after, contyneyeng there
by the space of ij days, vijli, iijs, xd.

1551.—Item to Doctour Wotton for his con-
saille in phisik to my Lord, xs.—Item to Gold-
ring the potecary for marmalad and other
thinges, xs.

1554.—Item to Doctoer Hyll, xxs.—Item to
Doctor Wooton, the same daie, xs.—Item to Hol-
land the surgion, the same daie, iijs, iijd.

1555.—Item in reward to John Rolpoltey, my
Lord's surgoyn, by his comauand, xls.—Item, by
my Lorde's comauand, to the straunger that ys
his surgion, xs.

1558.—Item to Doctor Peter and Doctor Hil
at iij several times for their coming to my Lady,
xxvjs, viijd.

1559.—Item paid for cariage of Bukston's
water sent to my Lord of Penbrok, iijs, iijd.

1590.—Item geven at the christenyng of Mr.
Bassete's daughter, to mydweif and nurse, xxs.

1594.—Paid to Mr. Docter Hunton and Mr.
Harrye Webster for commynge to Belvoire to
her Ladyship, xxxs.—Paid to George Sandwith,
barber, for commynge to Belvoire ij severall
tymes to tryme his Lordship, vs.

1598.—Item for two bezer stones, vijli.

1599.—Item geven to Doctour Marbeck for the
waters and phisicall thinges sent towards Ire-
land, and for his paynes in providing them, xli.—
Item geven to Mr. Goodrouse, her Majeste's
sergeant chirurgian, whom she sent to my Lord,
vli.—Item geven to Mr. Thorne, chirurgian, vijli.
rijs, iiijd.—Item to Mr. Doctour Marbeck for his
half yeares anuytue due at Our Lady Day, iijli,
vjs, viijd.—Item paied to the apothecary for phis-
ick for Capten Whitlock, xxvjs; and geven to
Doctour Marbeck for his paynes about the Cap-
ten in his sicknes, by his Lordship's command-
ment, vli.

1600.—Item in rewarde to Doctour Marbeck
for certen waters and other things which he
bought and provided for my Lordes use in his
jorney into Holland, and for his paynes, xli.

1604.—Paid to Mr. Docter Hunton in re-
warde commynge to my Lady iijli, and to John
Lucas his poticarie, xis.—Paid to Mr. Docter
Mumforde for commyng from London to myn-
ster phisicke to mye Ladye, xlvi.

1605.—Item, to Mr. Perk for letting his Lord-
ship's blood, xxxs.

1606.—Item, to Sir Walter Raleigh's man
that brought a water for my Lord for the col-

lieue, xxs; for half an oz. of muske to make plaister, xxxx; a pounds of tobacco sent to Belvoire, xls; tobacco pipes, vs.

1607.—Given to Mr. Rigesley, of Newark, phision, being sent for to come to Henry Lynde, by my Lord his comandiment, xxxx.— Given to Mr. Alton, of Nottingham, phision, as in rewarde for attending of my Lady and mis-tris at Belvoer, vii.

1609.—Item paied to Mr. Doctour Percy waile, apothecary, for viij oz. of elixar of saltt, ijli, iij; water distilled, a quart. vjs; pylles, ijs, vjd.

1611.—Item, for a plaster for the gowte from Mr. Crammer for my Lord, xs.

1612.—Item to Mr. Frederick and Mr. Guillian, chirurgians, for their attendance upon my Lord (Roger, Earl of Rutland) at Cambridge from the tyme of Mr. Guillian's comyng to Cambridge and for the incision made, jli, and for mbalmynge the corps, xxli.

1614.—Paid Fredrick, the surgeon, for im-alming the corps of Sir Olliver Manners, xxxli.—Delyvered to Mr. Waters, of Stamford, when he was sent for to my Lord Roasse, beeinge not well, ijli.—Paied the same daie unto John Hilon, his pothecarie's man, for apothecarie stiffe, ijs, iiijd.—Delyvered to Mr. Doctor Ridgley, of Newark, for ten daies beeinge at Belvoire with my Lorde Rosse, xli.

1615.—To Doctor Ridgley, for beeinge at Gardon with my Lorde Rroosse, when he was not well, payd to him for vj daies, in goulde, vjli, ijs.

1618.—Paid to Doeter Anthony for a dram of ie essece of gold, 6li.

1640, August 11th.—Item paid to Sir Daniell Elyne for two gree stones, whose virtue is good to cure the stone in the bladder or kydneyes, for whch I (Earl of Rutland) have payd 3li, 5s, and am to have a twely moneths tryall, and yf do not like them I shall have 40s for them gaine.

1652.—Paid to my honourable Ladye's hands, or Docter Preedian, at twise, for his care of ord Roose, 50li.—Paid Mr. Turnor that prends to cure my Lord, 9li, 5s."

One may question whether this last sentence is merely a fashion of phraseology, or whether it may perhaps contain some conscious or unconscious irony about Mr. Turnor's services.

To the Honorable, the City Council of the City of Los Angeles, County of Los Angeles, State of California,

“Whereas, New York City, with 165 municipal tuberculosis nurses has recorded a diminution in the number of cases of tuberculosis from 32,065 in 1910 to 22,752 in 1912; and a reduction in the death rate from pulmonary tuberculosis in Manhattan and the Bronx from 427 per hundred thousand in 1881 to 190 per hundred thousand of population in 1912, a reduction of 55%; and

“Whereas, the results obtained in New York City are ascribed largely to the employment of municipal tuberculosis nurses, in a communication from the General Medical Officer of the City of New York, Herman M. Biggs, dated Dec. 18, 1913; and

“Whereas, in the City of Boston, Massachusetts, ‘all cases of tuberculosis reported are visited by nurses,—twenty-five in number,—paid by the city, and it is rare there now to find a neglected or abandoned case, and there has been a diminution in the total number of deaths from tuberculosis and also in the case rate’; and

“Whereas, the city of Baltimore, Maryland, with a force of 17 tuberculosis nurses has secured a reduction in both the cases and deaths from tuberculosis, so that the Commissioner of Health of that City declares that their work shows the need of many more tuberculosis nurses; and

“Whereas, the city of Buffalo, New York, with a force of 17 tuberculosis nurses, feels the need of more tuberculosis nurses; and

“Whereas, the city of Cleveland, Ohio, with 15 tuberculosis nurses and a record of good results, declares the need of more tuberculosis nurses; and

“Whereas, the city of Columbus, Ohio, has six tuberculosis nurses; and

“Whereas, the city of Los Angeles, California, has only one tuberculosis nurse and has shown an increase of about 50% in the reported cases of tuberculosis during the past year, and a large increase in the number of deaths from that disease; and

“Whereas, the work in the eastern cities, above referred to, has shown that a visiting tuberculosis nurse cannot satisfactorily take care of more than one hundred cases of tuberculosis; and

“Whereas, a recommendation similar to the following proposed ordinance, received the unanimous endorsement of the Nursing Commission of the city of Los Angeles, Jan. 6, 1914, and has been endorsed by many of the leading business men, firms and organizations paying taxes in the city of Los Angeles; therefore,

“The following ordinance is hereby proposed, to be adopted by the City Council of the city of Los Angeles, or, if the same be not adopted by said Council, the proposed ordinance then to be



ETITION FOR TUBERCULOSIS NURSES.

THE following petition has been presented to the city council of Los Angeles, California, to the end that a sufficient staff of tuberculosis nurses may be provided to further the work of eradication of tuberculosis in that city. The initiative petition received about 20,000 signatures and passed at the June election by a vote of 47,359 to 25,681.

submitted to a vote of the electors of the city of Los Angeles as provided in the Sections 198-a, 198-b, 198-c, 198-d, and 198-e of the Chapter of the city of Los Angeles governing the initiative; to wit:—

“An Ordinance Providing for the Employment of Municipal Visiting Tuberculosis Nurses.

“Section 1. The Health Commissioner of the city of Los Angeles shall and is hereby empowered and directed to employ, in the name of and for the city of Los Angeles, municipal visiting tuberculosis nurses, in the proportion of one such nurse per one hundred reported cases of tuberculosis in the City of Los Angeles.

“Sect. 2. The municipal visiting tuberculosis nurses thus employed by the Health Commissioner of the city of Los Angeles, shall be paid by the city of Los Angeles at the rate of compensation provided for Municipal Nurses in Section One of Ordinance No. 28, 179 (New Series).

“Sect. 3. It shall be the duty of the municipal visiting tuberculosis nurses of the city of Los Angeles to visit professionally all reported cases of tuberculosis in the city of Los Angeles, excluding those under treatment in public or private hospitals or sanatoria, unless requested in writing not to do so by the patient or physician in charge.

“Sect. 4. The Health Commissioner of the city of Los Angeles is hereby empowered to establish such supply stations as he may deem necessary from time to time for the professional use of the tuberculosis nurses provided for in this ordinance.

“Sect. 5. The Purchasing Agent of the city of Los Angeles is hereby directed to purchase on requisition from the Health Commissioner such supplies as the latter may from time to time deem necessary for the professional use of the tuberculosis nurses provided for in this ordinance.

“Sect. 6. The Health Commissioner shall divide the city of Los Angeles into appropriate sections or districts and shall assign one or more tuberculosis nurses to each and every section or district thus formed according to the number of cases of tuberculosis therein, exclusive of those under treatment in public or private hospitals or sanatoria.

“The tuberculosis nurses shall be held responsible for their respective sections, but may at the discretion of the Health Commissioner be given work outside of the sections to which they are assigned.

“Now, therefore, we the undersigned qualified electors of the said city of Los Angeles, do hereby petition your honorable body to adopt the said ordinance for the city of Los Angeles, or, if the same be not adopted by council, we hereby demand the submission of the said ordinance to a vote of the qualified electors of the said city of Los Angeles, in accordance with the sections of the city charter of the city of Los Angeles governing the initiative.”

MEDICAL BROTHERHOOD FOR THE FURTHERANCE OF INTERNATIONAL MORALITY.

THE following is the text of the appeal to which we have referred in previous issues of the JOURNAL, which was recently issued by Dr. S. J. Meltzer to the men and women engaged in medical practice and the advancement of the medical sciences.

“The present war among civilized nations has brought out impressively certain facts: that although there are civilized *individual* nations, we are still very far from having a civilized humanity—there is an abyss between *international* and *international* morality: that, no matter how cultured and enlightened nations may be, they still settle their international differences by brute force, by maiming and killing their adversaries; and, finally, that the present high development of science and invention in individual nations only serves to make the results of this war more destructive than any other in history.

“The war has demonstrated, however, one encouraging fact, namely, that among all the sciences and professions, the medical sciences and medical practice occupy an almost unique relationship to warfare, and that, among all the citizens of a country at war, medical men and women occupy a peculiar and distinctive position.

“No discovery in medical sciences has been utilized for the purpose of destroying or harming the enemy. Medical men in each of the warring countries are as courageous, as patriotic, as any other citizens, and are as ready to die or to be crippled for life in the service of their country as any other class of their fellow countrymen. Their services, however, consist in ministering to the sick and to the injured and in attending to their sanitary needs. Furthermore, they often risk their lives by venturing into the firing line to bring the injured to places of safety and to attend to their immediate needs. In these heroic and humanitarian acts friend and foe are treated alike. Finally, the majority of the members of the medical profession and of the medical journals of the neutral as well as of the warring countries, abstain from public utterances that might be grossly offensive to any belligerent nations.

“These facts—this advanced moral position in international relations which medicine and its followers are permitted to occupy in all civilized nations,—ought to be brought to the full consciousness of the men and women engaged in the medical sciences or in medical practice. Such realization could not fail to have an elevating influence upon the medical profession itself, and would probably exert a favorable influence upon the development of international morality general.

“At the dawn of history, medical men were frequently also the exponents of philosophy and morals. In the middle ages, when knowledge

became specialized, medical men more and more devoted their activity exclusively to medical practice. Because of its inefficiency at that time, medicine lost its prestige. In recent times, however, medicine is becoming an effective science; one marvelous discovery has followed another, and the efficiency of medical practice has been rapidly increasing. Medicine makes habitable to man hitherto uninhabitable parts of the world. It prevents disease; and, with increasing theoretical and practical efficiency, medicine learning to alleviate and cure disease and injuries. Medical sciences and medical men have steadily risen in the esteem of civilized mankind.

Say not the medical sciences and medical men become again the standard bearers of morality, specially of international morals?

"To accomplish these objects, it is proposed to organize as large and effective an Association as may be possible, of men and women engaged in the medical sciences or in medical practice under the name of

THE MEDICAL BROTHERHOOD FOR THE FURTHERANCE OF INTERNATIONAL MORALITY.

"It is obvious that such a Brotherhood could not exercise an important influence at once, but our modest expectation for prompt results would not prevent us from attempting now to take the first step in the right direction. Many important results have often had small beginnings.

"A Committee of Physicians and Medical Investigators request you herewith to enroll as a member, and to declare your willingness to endorse and support the moral standard which the medical profession generally upholds when called upon to perform its patriotic duties in an international strife."

"It should be expressly understood that it is the object of the proposed Brotherhood to influence the feelings and views of any one regarding the problems involved in the present war. It is desired merely to bring to the full consciousness of the members of the medical profession the exceptional moral position which civilized nations, even while at war, *permit and expect* medical men to occupy, at least as long as they remain in the medical profession and act in this capacity. This consciousness cannot fail to elevate the moral standards of physicians. Furthermore, after the close of the present war, the Brotherhood could, without doubt, facilitate the reunion of the members of the medical profession of all the nations which are now at war and increase good feelings among them. A humanitarian body, such as the proposed Brotherhood, if already in existence and ready for service, might and could be of the greatest usefulness in many ways."

CONDITIONS OF NAVAL SURGERY IN THE EIGHTEENTH CENTURY.

IN the issue of the JOURNAL for Oct. 22, 1914, we published an article on Dr. Tobias Smollett and some of his experiences as a physician and novelist. In the issue of the JOURNAL for Dec. 17 Dr. William P. Cones called further attention to the description in Roderick Random of Smollett's clinical duties as a naval surgeon. In the issue of the *British Medical Journal* for Feb. 6 appears still further comment on the conditions of the sick sailors in Smollett's time and the details of medical practice as he must have known them:—

"About fifty miserable distempered wretches suspended in rows, so huddled one upon another that not more than 14 inches space was allowed for each with his bed and bedding; and deprived of the light of day as well as of fresh air; breathing nothing but a noisome atmosphere of the morbid steams exhaling from their own excrements and diseased bodies, devoured with vermin, hatched in the filth that surrounded them, and destitute of every convenience necessary for people in that helpless condition.

"Clysters were administered by a mate who crept on all fours under the hammocks, and forcing up his head between two kept them asunder with one shoulder till he had done his duty. Roderick Random tried to follow his example, with consequences of a Zolaesque character which need not be described. He was besides fixed as it were, in a pillory between two hammocks, and had to be rescued when he was on the verge of strangulation. He had to go close-shaved by way of preserving himself from the parasites which infested the sick berth,

"We get a picture of the cockpit during an action where the surgeon hid himself, and was only induced to get up by threats that a complaint would be made to the Admiral. Fortifying himself with rum, he went to work, and arms and legs were hewn off without mercy. He could not, however, be got to go up on deck to dress a wound received by the captain.

"Random fell ill with what he calls bilious fever, and owed his life to a grateful sergeant whose nose he had mended after a wound during the fight. This man gave him the use of his own berth in the middle deck, which was well aired. They got a new captain, a dandy who sent for Random to bleed him, but distrusted his skill when he saw him. He said to his valet, who from time to time applied a smelling-bottle to his nose: 'Dost thou think this wretch'—meaning Random—'will do me no injury?' May I venture to submit my arm to him?" He then politely asked Random if he had ever bled anybody but brutes; before the operation could be performed, his own surgeon, in whom he had more confidence, turned up. This picture is painted with the detail of a Dutch artist, and apparently Carlyle thought it a faithful pic-

ture, although to some it may seem not untinged with malice, for Smollett had, no doubt, to endure many indignities more serious than that put upon him by the dandy captain. However this may be, the picture may give a notion of the medical service of the British Navy in the middle of the eighteenth century, and of the way in which the patients—and the medical men—were treated."

Correspondence.

MIXED INFECTION IN TUBERCULOSIS.

29 GLOUCESTER STREET,
BOSTON, August 5, 1915.

Mr. Editor: May I be allowed to comment on your editorial entitled "Mixed Infection in Tuberculosis," which appeared in the JOURNAL of July 22, 1915?

While the entire subject of the rôle played by a superadded mixed infection in tuberculous processes is still one concerning which there is much dispute, I doubt very much whether the majority of investigators would in the slightest degree agree with the opinion expressed in your editorial. The work of Dr. Inman coming from the laboratory of the Brompton Hospital in London, which appeared in the London *Lancet* a year ago, is a detailed painstaking and most thorough investigation of this subject. Coming from such authority as this, his conclusions merit serious consideration. Dr. Inman believes, as a result of this investigation, that the part played by mixed infections is a very minor one; and that the great majority of the serious symptoms, temperature, rapid pulse, loss of weight and strength, etc., are caused by the tubercle bacillus and its toxins and not by the pyogenic organisms.

While it is of course true that in practically every case these mixed organisms are present, I do not believe that it has been proved that they play an important part in the symptomatology of the disease. The statement which you make, "There is a positive danger in interfering with such infections (cold abscesses in tubercular conditions) for fear of converting these sterile tubercular abscesses into pyogenic abscesses, with serious effect to the patient," is interesting, but hardly in accordance with what has come to be recognized as the best treatment of the condition.

I would strongly disagree with your statement that "In uncomplicated tubercular infection there is tendency to subnormal temperature, and the afternoon rise of temperature is not a universal feature in pulmonary tuberculosis." While in certain instances this statement is true, in the great majority of instances such is not the case.

The statement that "Absence of leukocytosis is considered good evidence of the absence of cavity in cases where the physical signs seem to point, but uncertainly, to that condition" is an interesting point, but one that would merit further study and investigation before being accepted.

It seems to me that the statements expressed in this editorial are liable to cause a certain amount of harm in that they would tend to lessen our respect for the tubercle bacillus and its powers and to lay more stress on what, personally, I believe to be the comparatively harmless organisms which so often accompany the tubercle bacillus itself.

Very truly yours,

JOHN R. HAWES, 2D, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING AUGUST 7, 1915.

CONTRIBUTIONS.

Marwick, Mitchell, Peat & Co., chartered accountants, three audits of the Treasurer's accounts, March 20, May 30, and June 20, 1915.

Dr. E. W. Smith, Meriden, Conn. \$ 10.00

Receipts for the week ending August 7 10.00
Previously reported receipts 7769.84

Total receipts \$7779.84

Previously reported disbursements:
1625 standard boxes of food @ \$2.20...\$3575.00
1274 standard boxes of food @ \$2.30... 2930.20
353 standard boxes of food @ \$2.25... 804.84

Total disbursements \$7310.00

Balance \$ 469.84

F. F. SIMPSON, M.D., Treasurer,
704 Jenkins Arcade Bldg.
Pittsburg, Pa.

SOCIETY NOTICE.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The twenty-fifth annual meeting of the Association will be held at Atlantic City, September 14, 15 and 16, 1915 with headquarters at the Hotel Chalfonte.

All physicians interested in physical therapeutic are invited to attend.

J. WILLARD TRAVELL, M.D., Secretary.

APPOINTMENTS.

UNIVERSITY OF LONDON.—Dr. Francis Arthur Bainbridge, of the University of Durham, has been appointed professor of physiology at St. Bartholomew's Hospital Medical School.

RECENT DEATHS.

DR. ARTHUR T. HILLS, who died recently at Nashua, N. H., was born in Hudson, N. H., and had been practising physician in New York for many years.

DR. HORATIO N. SPENCER, a practising physician at St. Louis, died on August 7 in Atlantic City, N. J.

DR. THOMAS ALOYSIUS MALONEY, of Springfield Mass., a graduate of the New York University Medical College in 1898, died at New Britain, Conn., July 13, 1915, aged 40. He was a Fellow of The Massachusetts Medical Society.

DR. MARC FONTAINE, who died on Aug. 9 at Spence Mass., was born at St. Hugues, Quebec, in 1849. He was educated at Nicolet College and received his medical degree from Victoria College, Montreal. He practised his profession in Spencer for twenty-five years and since that time has lived in retirement.

DR. MARK B. RODDY, who died of appendicitis on Aug. 12, at Lynn, Mass., was born at Fitchburg, Mass. in 1887. He graduated in 1910 from the Baltimore Medical School and since that time had practised his profession in Lynn. He was not married.

DR. JAMES L. WHEATON, who died on Aug. 12 at Pawtucket, R. I., was born in Seekonk, Mass., on March 14, 1823. He graduated in 1846 from the Harvard Medical School and from the Berkshire Medical School in 1847. Since that time he had practised his profession continuously in Pawtucket. He is survived by two aged daughters, and by a son, also a physician.

The Boston Medical and Surgical Journal

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Address.

ACUTE TUBERCULAR INFLAMMATION OF THE ILEO-COLIC GLANDS SIMULATING APPENDICITIS.*

BY HOMER GAGE, A.M., M.D., WORCESTER, MASS.

THE attention of the whole world seems just now to be centered on war, with its horrible story of the destruction of property, homes, and human life.

As disciples of medicine and surgery, our interest lies not in the machinery and engines of destruction, but in the means of relieving the suffering and restoring the health of those who are fortunate enough to be enrolled among the wounded rather than the dead.

I presume your thoughts, like mine, have been focussed upon the field and base hospitals where so many poor fellows are carried, and where there is often so much to do and so little to do it with. But perhaps, like me, you have wondered whether after all, in spite of all the difficulties and deficiencies, there must not be a very real satisfaction in dealing with sound bodies, and in the feeling that wherever success is possible, it is going to be permanent; and in escaping even for a little while from our constant and so often hopeless struggle with tuberculosis and cancer.

It is our perpetual war, and is ever fought against tremendous odds, and under most discouraging conditions, discouraging, because the favorable results, at any rate the complete view-

tories, still seem so far beyond our control and so few.

In some cases we fail, because the infection is in localities that are beyond our reach; in others, because it is so general that local intervention is of little use; in others, our attempts at interference seem to stir up a general infection or cause a transfer of the infection to new fields, most often to the meninges; in still others, our best efforts involve permanent deformity or disability; while in most of them it affords but a temporary and all too feeble check. And yet we must fight on, ever seeking and hoping for more knowledge, better weapons, and new methods.

I have been led to speak to you tonight about one phase of this great surgical warfare against tuberculosis, not because I can offer you any better weapons or new methods, nor have I any new knowledge, but because it seems to me that the subject has not yet received the recognition that its importance warrants. I refer to the tubercular infection of the mesenteric glands in the ileo-cecal angle.

The subject is hardly referred to in our surgical text-books, and has received scant attention in the great surgical systems; but it has occurred often enough in my own experience, to make me feel that it must be more common than we have been led to believe.

It is, moreover, of especial interest, because it so often and so closely simulates appendicitis, and because it seems to offer more than a reasonable chance for permanent cure—the results being distinctly more favorable than in the tuber-

* Read before the Springfield Academy of Medicine, Dec., 1914.

cular glands of the neck, which in some respects they closely resemble.

We have of course been very familiar for a long time with the manifestations of tuberculosis in the abdomen, as a general tubercular peritonitis, or as a general infection of the lymphatics in *tabes mesenterica*, in the forms of intestinal ulceration, and in the genito-urinary tracts of both sexes; but the relation of these different manifestations to each other, their beginnings and their relation to tuberculosis of the throat and air passages, has been but little understood.

Its discovery as a local process confined to the ileo-cecal glands has not by any means cleared up these difficult and important problems, but it has given us a new viewpoint. It seems not unreasonable to infer that tubercular infection through the intestinal walls, and especially through the wall of the cecum, may be a pretty constant menace; that the natural resistance of the individual may permit it to pass through the whole intestinal tract without inflicting any damage; that with other individuals this resistance may not be strong enough to prevent the invasion, until the lymphatics have become involved and their assistance called into play: in still others, the resistance may be so low that the lymphatics are unable to take care of it, and a general peritonitis or general tabes is the result. These are, of course, mere hypotheses, but they suggest new lines of thought, and new channels for pathological research.

What knowledge we possess of these conditions had been derived chiefly from autopsies and from operations for the relief of tubercular peritonitis,—in other words, we had looked at these conditions only in their later and more advanced stages.

It was only after the right iliac region had become nearly, if not quite, the most operated on part of the human body, that we began to find an infection of the glands in the ileo-cecal angle without demonstrable evidence of tuberculosis anywhere else.

In cases of acute appendicitis we do occasionally find a moderate enlargement of these glands, although it is relatively much more infrequent than it would seem reasonable to expect. Such glands are usually not larger than a small bean, and on section, show simply ordinary inflammatory changes. These are not to be confounded with the tuberculously infected glands about which we are concerned, and which are, as we shall see, often found without any apparent lesion in cecum or appendix.

One of the very earliest cases in which an acute tubercular infection of the ileo-cecal glands was found and the glands removed, was reported by the late Dr. Maurice Richardson before the American Surgical Association in 1900, although the operation had been done five years earlier.

In an operation upon a boy five years of age, undertaken for a supposed acute appendicitis, he

had found "a healthy cecum, and an unaffected appendix, but in the mesentery of the ileo-cecal coil were numerous enlarged glands, varying in size from that of an English walnut, to that of a large pea," two of them had a cheesy content, and all were pronounced tubercular by Dr. Malory.

In commenting upon this case Dr. Richardson said "cases of this kind must be extremely rare. Not that tuberculosis of the abdominal viscera is rare, for taken as a whole, it is a common disease. Limited, however, to a single small area of the peritoneum, or of the peritoneum covered viscera, it is unusual: limited to an area that permits complete extirpation, it is more unusual still."

At the same meeting of the American Surgical Association, Dr. J. W. Elliott also presented a paper on the "Successful Removal of Acutely Inflamed Tubercular Mesenteric Glands," and reported a case operated upon in 1899, very similar to that of Dr. Richardson.

A year later, in 1901, Dr. Richardson read a second paper, this time before the New York State Medical Society, on "Acute Tuberculosis of the Mesenteric Lymph Glands," but had no more cases to report.—he did say, however, "That unless I am much mistaken, emphasis laid upon this subject by full discussion, with renewed experience, will show that it is not so unusual a disease as has been supposed."

At about the same time Gerard Marchant had called attention to the fact that a peri-cecal tuberculous adenitis could give rise to symptoms of acute appendicitis; and he maintained that the tubercular infection reached these glands through the appendix, even though it, the appendix, presented no microscopic or macroscopic evidence of the infection in itself, a view which is still widely held, especially by the French surgeons.

These are, so far as I can discover, the earliest papers to call attention to an acute tubercular adenitis, limited to the ileo-cecal mesentery, and closely resembling in its clinical aspects, a chronic appendicitis.

Since then, many more cases have been reported, and although they have not even yet attracted very general attention, they are enough to establish beyond question the soundness of Dr. Richardson's prediction that "it would be found not so unusual a disease as has been supposed."

In a paper read before the International Congress for Tuberculosis in 1908, Eisendrath gave synopses of seven cases reported by French surgeons, to which he added two from his own hospital records, in all of which tubercular ileocecal nodes were found.

In a discussion of this subject before the New Hampshire Medical Club in 1913, Dr. David W. Parker reported that he had been able to collect the reports of 39 cases, chiefly English and German, to which were added two more that had occurred in his own experience,—and on the

same occasion Dr. Lund of Boston referred to "about a dozen cases of his own, of tuberculosis of the mesenteric gland, with or without a chronic appendicitis."

To these I am able to add from my own records 11 cases of acute and one of chronic tubercular adenitis, limited to the ileo-cecal angle. From the relative frequency with which these cases have been observed in my own limited experience I cannot help feeling that they are much more common than the meagre journal reports and the scant references to them in surgical literature would seem to indicate.

Perhaps they have been so common in the larger clinics, that it seemed hardly worth while to report them; and I should have hesitated to bring so small a matter to your attention to-night, if it were not that the subject opens up some interesting points in the study of infections, and that some of the clinical features seem to me not wholly inconsequential.

Let me briefly restate the exact conditions and its limitations to which I wish to call your attention. It is not the existence of general tuberculosis of the mesenteric lymph glands, but of an acute local infection involving only the glands which drain the ileo-cecal region, and I am not referring to the acute hyperplasia of the ileo-cecal glands occasionally met with in acute inflammations of the appendix and cecum. The condition is that of a primary acute tuberculosis limited to this region.

What is the source of this infection, and why is it found so much more often here, than in any other particular part of the mesentery? In attempting to answer these questions our attention is obviously attracted at once to the structures which are drained by these glands, viz.: to the cecum and appendix.

Corner has pointed out the relative stasis of intestinal contents in the cecum, with the consequent multiplication of micro-organisms here, is perhaps the underlying factor, just as it is probably one of the important factors in the causation of appendicitis.

Tuberculosis of the cecum itself is by no means as rare as was formerly supposed. I have myself removed the cecum twice for tubercular stricture causing chronic intestinal obstruction.

It is of course possible that in the gland infections, there has been a primary lesion in the mucous membrane of the cecum or appendix which has healed spontaneously, or heals after the removal of the glands; but such a supposition is not necessary, because it seems pretty clear that tubercle bacilli can, as Jordan and Corner say, pass through the intact mucous membrane and give rise to gland tuberculosis in animals, without leaving any trace of their migration in the intestinal wall.

This has been disputed by Takeya and Dold of the University of Tübingen, but is accepted by Thiemann, and was affirmed by Dobroklousky as long ago as 1890.

It is moreover in harmony with the clinical

evidence in these cases submitted by a large number of independent observers, which would indicate that in the great majority of them, no demonstrable lesions could be found at the time of operation, and no persistent through unobserved lesion was indicated by the subsequent history.

Although the glands of which we have been speaking are not so prone to form large infiltrating abscesses as are the acute tubercular glands of the neck, the analogy is nevertheless quite suggestive, especially in some of its clinical aspects; and is further supported by the numerous lymphoid follicles which are contained in the mucosa of the appendix, and which are very similar to the lymphoid tissue in the tonsils.

Numerous instances of what have seemed to be primary tubercular lesions of the appendiceal mucosa have been observed, and there would appear to be no reason why the bacilli should not pass through the uninjured lymphoid follicles of the appendix, just as they are believed to do through the follicles of the tonsils; and to my mind this is the most rational mode of explaining the infection of the ileo-cecal glands, and as has already been pointed out, seems to be the opinion of the French surgeons.

Another interesting question in this connection is the relative frequency of the human and the bovine tubercle bacilli found in infection of the mesenteric glands, and although I am aware of no case of the acute limited forms which we have been considering, in which the differentiation has been worked out, there is an interesting study of 71 cases of mesenteric gland infection in general, by Hess, in which the type of the infecting organism has been isolated and studied.

In 62% he found an infection with the bovine type of bacillus, and goes on to say, "that this type cannot, then, be disregarded, and in connection with the percentage of bovine infection, which has been demonstrated in other organs, these figures emphasize the fact that mesenteric glands form the chief portal of entry for the bovine bacillus, with the tonsils alone to share the distinction."

Had he said that the lymphoid follicles of the intestine formed the portal of entry, I think he would have been more nearly correct.

However the distinction is probably of little importance, as Hess himself reports three cases, two in children, and one in a young adult, in all of which he found the human type; and Theobald Smith, in an article on "A Study of the Tubercle Bacilli Isolated from Three Cases of Tubercular Mesenteric Lymph Glands," says that "The bacilli isolated from these three cases of presumptive food infection, do not correspond to the bovine type of bacilli in any one particular."

It may be safely inferred therefore, that both forms are present in these infections, and that milk, cream and butter are not more important factors in the causation of tubercular lymph

nodes, than many others about which we hear much less in the public prints, and before legislative committees.

In reviewing the clinical history of these cases, one finds that the only attempt to make any real classification, is that of Corner, who in his second paper, published in 1908, makes a distinction between the tubercular mesenteric glands found in adults, which he says are most frequent in the ileo-cecal region, rarely form a palpable tumor, and are frequently associated with the appendix, and those found in children, which may be anywhere in the mesentery of the small intestine, usually in its lower part, are due to infection from the small intestine, and usually form a movable palpable tumor under the left rectus.

These conclusions are, however, not confirmed by a study of the cases reported by Thiemann, Richardson, Parker, and the French surgeons, nor by my own.

Four of my cases ranged from seven years to twelve, and seven of them from 16 to 25. In none of them was there a palpable tumor, and in all but one the glands were confined to the ileo-cecal region; and in that one, they were chiefly in the same location, though a few small glands were palpable in other parts of the mesentery.

Neither the findings nor the clinical history differed in any material respect between the younger and the older group. All of the cases happened to be in females. The condition, however, is certainly not confined to one sex, and I am not in a position to say that it is distinctly more common in one than in the other. My own experience would lead me to suspect that it was.

The predominant feature in them all, as well as in most of the cases elsewhere reported, has been an attack of pain and tenderness, localized in the right iliac region, of recent origin, accompanied by a slight rise of temperature, and without demonstrable tumor; in only one of my cases was a small tumor believed to be present. Nausea was present in almost all, but vomiting occurred only in four.

In one case there was a history of two previous attacks of appendicitis,—one six months, and one two years before, another had her first attack of right iliac pain and vomiting eight months before, had been in bed for two days, and had been unable to stand erect for several days afterwards; she had had six similar attacks before operation. She had two glands in the ileo-cecal angle, each of which contained a large amount of caseous material, on the smears of which tubercle bacilli were easily demonstrated.

The appendix presented nothing remarkable, either upon gross or upon microscopic examination. In these, as in all the rest, the clinical history seemed to point unmistakably to an appendicitis of moderate severity.

One case was especially interesting, because the appendix had been previously removed for the relief of the same symptoms. She had had more or less pain in the right side of the abdomen ever since the operation,—for three days

before entrance to the hospital the pain had been very severe, with nausea but no vomiting; three enlarged glands were found in the ileo-cecal region as big as English walnuts, one was ruptured in the process of removal, and contained a thick cheesy material—culture from which showed no growth. During her convalescence she still complained at times of the old pain, but I am sorry to say that I have been unable to follow her subsequent history.

I have often wondered whether I overlooked some other infected glands, or whether the gland which I ruptured may have infected the peritoneum. Either supposition is of course quite possible, although at the time of her discharge, one month after operation, she seemed to be much improved.

None of the cases presented any evidence in personal or family history suggesting tuberculosis, although in two or three, subsequent investigations revealed the presence of tuberculosis in collateral branches.

It will be readily appreciated that an accurate differential diagnosis in these cases is attended with the greatest difficulty. I have never yet myself been able to make the correct diagnosis before opening the abdomen,—every one of my own operations was undertaken with the expectation of finding an inflamed appendix and I was as much surprised at my twelfth experience, as I was at my first.

I have, moreover, sometimes been led by an atypical history, or by the appearance of the patient, to suspect a glandular tuberculosis, only to find a simple catarrhal or obstructive appendicitis.

It is perfectly possible, I suppose, that personal or family history, or the physical examination may occasionally point clearly to an acute tubercular infection of these glands, but I have never been fortunate enough to meet with such a case, or else I have been too dull to recognize it.

Fortunately, the indications for operative interference are not dependent on an accurate diagnosis. The symptoms in my series were all those of an acute inflammatory process in the right iliac region, so directly suggestive of an acute appendicitis,—and I think no surgeon of experience could have questioned the propriety of operation, and operation without delay.

In all of the other cases which I have been able to study from the reported records, the same positive indication for operation was present, and the appendix seems always to have been suspected as the cause of the outbreak.

In most of them the appendix was removed as well as the glands. It had been previously removed in one of mine, and was taken out in all but one of the others. Why I did not take it out in this one, I cannot now recall, and my record does not state. My present opinion is that it should always be excised.

I have never been able to demonstrate the existence of any tubercular infection or ulceration of the appendix in these cases, although all of

them showed more or less chronic inflammatory or obstructive changes.

The cecum was not opened in any of them, but neither inspection nor palpation suggested anything abnormal. I think that the infection of the glands was without any primary demonstrable lesion in the wall of the cecum or appendix. I believe, however, that the appendix will almost always, if not always, show signs of inflammation or obstruction, and should always be removed.

The technic of the operation is, therefore, that of simple appendectomy, plus the dissection of the infected glands. This should, if possible, be accomplished without rupture of the glands, so that primary union may be obtained. Care must be taken not to interfere any more than is absolutely necessary with the blood vessels of the mesentery, so that the viability of the intestine should not be impaired, and all hemorrhage must be securely stopped.

Rupture of a gland with the escape of cheesy contents, so that there is any material contamination of the surrounding peritoneum, raises the question of the desirability of drainage. Of course, when the escaping contents are purulent, one should always drain, and in the border line cases, the old surgical maxim, "when in doubt, drain," seems to me, still to hold good.

I have not yet met with any cases of mixed infection, though there would seem to be no reason why it should not occur. The laboratory report has been, "no growth from the culture."

It is by no means always possible to obtain the tubercle bacilli from the gland tissue, or on the smear taken from the gland contents. We have been able to demonstrate the bacilli in four of these cases, and have identified the others by finding typical tubercular and giant cell formations.

In spite of the fear with which the announcement of a tubercular infection always inspires us, I think we can very confidently look forward, in the type of case under consideration, to a favorable result.

One can readily understand the disappointment and anxiety which Dr. Richardson tells us was occasioned by the discovery of tubercular glands in his first case in 1895, before the existence of localized glandular infection had been recognized, but his patient is now a strong vigorous young man of 25, and although a very few instances of subsequent generalized tuberculosis have been reported, almost all of them have been free from subsequent manifestations.

Some of my own cases I have been able to follow up to the present time, and to know that they have remained perfectly well. Only one of the others, so long as I was able to follow them, had developed any evidence of tubercular taint, so that I feel that we may safely regard the prognosis as favorable.

All of my cases recovered from the operation, although convalescence was complicated in one by pneumonia, and in another by phlebitis of the left leg.

What would happen if these glands were allowed to remain, raises an interesting question which it is not easy to solve. In the case reported by Parker, adhesions between an inflamed caseous mesenteric lymph gland, the size of a walnut, and the adjacent lower part of the ileum had caused a sharp kink in the bowel, with symptoms of obstruction, and had so infected the bowel as to lead to its rupture during the process of separation.

In other reported cases, considerable abscess cavities have been found. On the other hand Treves says, that he has seen the glands diminish after simple exploration, and the presence of small cicatrized calcareous glands sometimes showing, as described by Corner, in an x-ray plate, like a ureteral calculus, would seem to indicate, that, in some cases at least, there is a definite attempt at spontaneous resolution or cure.

This, however, should not deter us from surgical interference, because our interference is undertaken only when symptoms indicating an acute inflammatory process in the right iliac region are present, and the condition once disclosed by the incision, there can be no question as to the desirability of removing the infected glands.

I have tried thus briefly, and I am afraid very imperfectly, to call your attention to a form of tubercular infection of the mesenteric lymph glands, which is to be distinguished from the ordinary form of tabes mesenterica, by being limited to the group of glands situated in the ileocecal angle, and characterized by an acute inflammatory reaction, closely resembling the milder forms of appendicitis.

It is certainly much more common than a review of surgical literature would indicate, and a knowledge of its existence, its proper treatment, and its prognosis is, I think, of importance to every one who is operating in the region of the appendix.

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LYMPHOCYTOSIS IN CANCER.—Through the Washington Academy of Science, Drs. John B. Murphy and John J. Morton, of the Rockefeller Institute for Medical Research, announce their belief, based upon experimental observation, that lymphocytosis is associated with increased immunity to cancer. It is suggested, but still remains to be proved, that injection with an extract of lymphoid tissue may increase this immunity.

Massachusetts Medical Society.

MEETING OF THE SECTION OF MEDICINE.

SYMPOSIUM ON HEART DISEASE.

JUNE 8, 1915.

- I. The Use of Digitalis in the Various Forms of Cardiac Arrhythmia, by Henry A. Christian, M.D., Boston.
 - II. The Relationship of the Abnormal Heart Beat to Prognosis, by Paul D. White, M.D., Boston.
 - III. The Treatment of Heart Disease, by F. C. Shattuck, M.D., Boston.
- Discussion.

I.

THE USE OF DIGITALIS IN THE VARIOUS FORMS OF CARDIAC ARRHYTHMIA.

BY HENRY A. CHRISTIAN, M.D., BOSTON.

In recent years new methods have been available for studying cardiac action in man; methods which make possible an accurate analysis of the contraction wave, as it sweeps over auricle and ventricle, with a better understanding of disturbances in heart rate and rhythm. The polygraph and the string galvanometer or electrocardiograph are the instruments which have been of greatest service in this study. With them the action of digitalis on the human heart can be investigated with the thoroughness that is used in the pharmacological laboratory for animal experimentation, with the very great advantage that it is the human heart disturbed by natural disease that is being studied, not the normal heart of an animal or an animal's heart in which man's acquired disease is but crudely imitated.

It is my task this afternoon to place before you some of the results of this work. I will attempt to give an interpretation and an application to clinical practice of studies which have been conducted in many clinics rather than to report any new studies of my own. However, instead of analyzing the literature on the subject or quoting the opinion of others I will give deductions from this work as we have attempted to apply it to patients observed in the clinic of the Peter Bent Brigham Hospital.

Now if the application of the polygraph and electrocardiograph to the study of cardiac disorders is to be of any real usefulness to the general practitioner of medicine, the knowledge gained from such studies must be translatable into the terms of general practice, that is, brought into the range of such observation as is possible with finger, eye and stethoscope. I believe that by the use of very complicated and expensive apparatus we have acquired so much better knowledge of cardiac arrhythmias that we are in a position by very simple means to recognize accurately the common arrhythmias, and understanding better their mechanism we can

apply in their treatment our therapeutic measures with far greater success.

Irregularity in heart action may arise in several ways. Normally the contraction impulse begins at a point in the region where the superior vena cava joins the right auricle and spreads over the auricle as a contraction wave. The contraction of the auricle originates an impulse which travels from auricle to ventricle along the conduction system or His bundle, and arriving at the ventricle starts almost simultaneously in many parts of the ventricles a contraction of ventricular musculature which drives out into the peripheral vascular system a certain amount of blood. Irregularity in heart action will result from disturbances at the point of origin of the impulse, in the auricle, in the conduction system or in the ventricle. For our purposes we

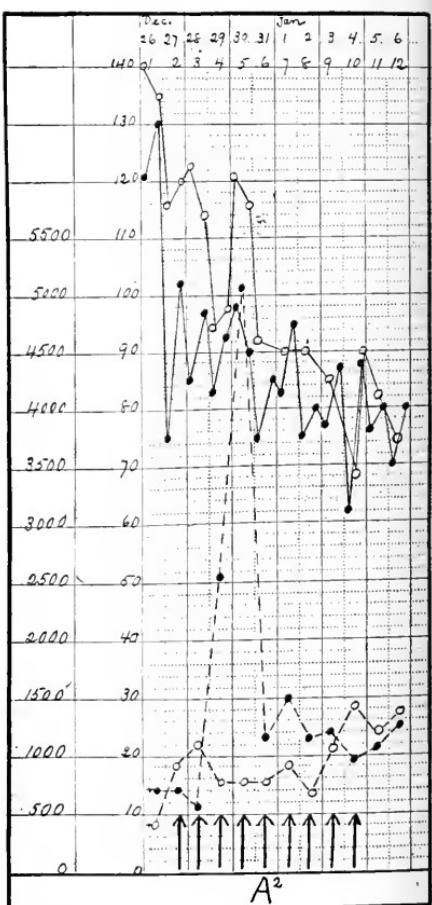


Fig. 1.—Patient with auricular fibrillation. Dots joined by solid line indicate radial pulse rate. Circles joined by solid line indicate apex rate. Dots joined by broken line indicate urine output in c.c. Circles joined by broken line indicate fluid intake in c.c. Arrows over A² indicate days on which the patient received three doses of 0.1 gm. each of powdered digitalis leaves.

need discuss only those arrhythmias which frequently are associated with or are the cause of cardiac decompensation. As with cardiac murmurs so with cardiac arrhythmias, it is the evidence of cardiac decompensation that should indicate the need for therapeutics, not the finding of an irregular pulse.

One of the most frequent arrhythmias in this sense of causing cardiac decompensation is auricular fibrillation, a condition in which the auricle instead of contracting regularly and rhythmically, at a rate of 70 to 90 per minute, is in a condition of very rapid fibrillary twitching with no functional contraction in the sense of squeezing its contents into the ventricle during the period of ventricular diastole. There being no orderly sequence of contractions in the auricles, these fibrillary twitchings are continually starting impulses along the conduction system of varying intensity, to only some of which can the

ventricular musculature respond by contraction. The result is an extreme irregularity in the rate and force of the heart beat. The diagnosis can be made readily in most cases by feeling the pulse and finding an irregularity in rate and force which is without any suggestion of a dominant rhythm. If the patient shows signs of cardiac decompensation the stethoscope over the heart apex will reveal the same type of tumultuous irregularity in rhythm, and with the finger on the radial pulse there is a striking difference between apex rate and radial pulse because some of the weaker ventricular contractions fail to give an impulse to the blood stream that reaches the radial artery as a pulse wave. Finding a marked irregularity in pulse rate and a striking discrepancy between apex rate and radial pulse, the diagnosis of auricular fibrillation is justified. With auricular fibrillation digitalis almost invariably produces a striking effect, as shown by

Fig. 1 and Fig. 2, unless the myocardium is damaged so extensively that no longer can it respond to the digitalis.

The effect of digitalis is to slow the pulse rate (Fig. 1) and to increase the work of the heart, as shown by decrease in the signs of cardiac decompensation (edema, subcutaneous and pulmonary, ascites, cough, bronchitis, dyspnea, etc.). Sometimes there is a diuresis (Fig. 1); sometimes not (Fig. 2). A very important evidence of the beneficial action of digitalis is the decrease in the pulse deficit, *i.e.*, in the difference between apex beat and radial pulse (Figs. 1 and 2). In using digitalis it is particularly important to keep this effect in mind, for if one counts the radial pulse alone there may be no particular change in pulse rate, though the number of cardiac contractions has been materially decreased (Fig. 2). In fact in this form of cardiac arrhythmia the counting of the radial pulse may be very misleading, it being within normal limits when actually the heart is beating very rapidly (Fig. 2). To count the heart beats with the stethoscope is the all important thing, not the counting of the radial pulse.

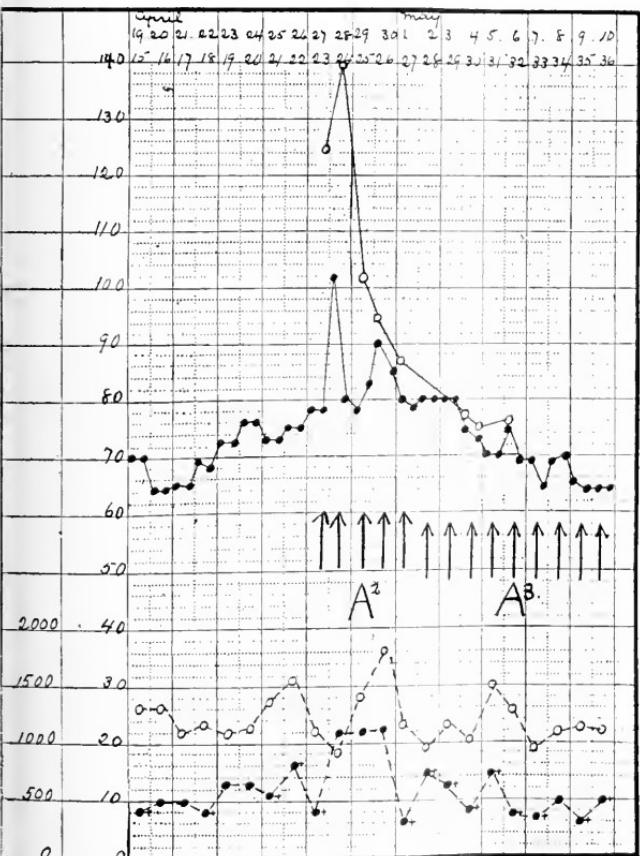
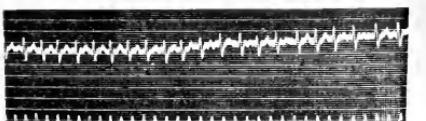
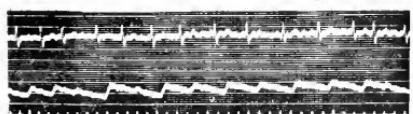


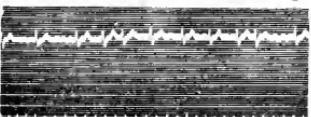
FIG. 2.—Patient with auricular fibrillation. Dots joined by solid line indicate radial pulse rate. Circles joined by solid line indicate apex rate. Dots joined by broken line indicate urine output in c.c. Circles joined by broken line indicate fluid intake in c.c. Arrows over A² indicate days on which the patient received three doses of 0.1 gm. each of powdered digitalis leaves. Arrows over A³ indicate days on which the patient received two doses of 0.05 gm. each of powdered digitalis leaves.



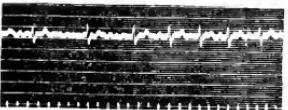
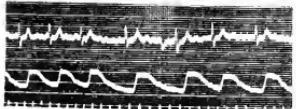
Dec. 21, 1914.-Rate 180 Poud Digitalis = 0.5 gm.



Dec. 22, 1914.-Rate 96 Poud Digitalis = 0.5 gm.



Dec. 23, 1914.-Rate 96 Poud Digitalis = 0.8 gm.

Jan. 6, 1915.-Rate 84. Poud Digitalis = 1.8 gm.
13 January 2ndJan. 28, 1915.-Rate 96 Infusion Digitalis
360 cc.

Jan. 28, 1915. Rate 84.

FIG. 3.—Electrocardiograms from patient with auricular fibrillation. Upper four curves show progressive effect of digitalis given in one period. The fifth curve shows bigeminny produced by digitalis given in another period. The sixth curve taken immediately after the fifth shows temporary character of bigeminny in this patient.

How does digitalis act in these cases of auricular fibrillation to improve the heart action? It is mainly an effect through the conduction system; digitalis impedes conduction in the His bundle, and the result is that fewer auricular contractions send through impulses to originate ventricular contractions, and so the ventricle beats more slowly. Beating more slowly, there is more time for the ventricle to fill and more time for the muscle to recover from fatigue, so the systolic output is increased. Probably also digitalis exerts an action on the myocardium, causing the contraction to be more forcible, and by its action it improves coronary circulation. Digitalis in these cases produces no effect on auricular contraction:—fibrillation continues as be-

fore. These effects are shown by the electrocardiograms (Fig. 3). If digitalis is pushed too far, nausea usually develops as a signal for its omission. In other cases a characteristic toxic effect appears,—the pulse becomes bigeminal. Electrocardiograms show (next to last curve in Fig. 3) that this bigeminny is produced by a ventricular extra systole or ectopic beat, following closely after the regular ventricular contraction whose impulse has originated in the auricle. This condition is easily recognized with the stethoscope over the heart or by the palpating finger at the wrist. Whenever a coupling of the beats is detected with pauses of varying length between the couples and a pretty constant interval between the two beats of the couples, one can feel pretty sure of the existence of this toxic effect of digitalis in a case of auricular fibrillation. The condition may persist for some time or the rhythm may return quickly to its original form (see last curve Fig. 3), depending upon the severity of the toxic effect of the digitalis. The occurrence of this phenomenon is a sign, of course, for the omission of digitalis.

In some cases with auricular fibrillation in which edema is marked a much better diuresis is obtained by combining with the digitalis a diuretic drug, such as theocin (Fig. 4).

In another form of arrhythmia, namely, auricular flutter, digitalis usually produces a very striking effect. By auricular flutter is meant a condition in which the auricles are beating regularly and very rapidly, over 200 per minute (Fig. 5), too rapidly for the ventricle to respond to each auricular impulse. As the ventricle lags behind the pulse becomes slightly irregular, with a tendency for the irregularity to come in groups which repeat themselves. However, this condition usually is difficult of diagnosis except with the electrocardiograph. Digitalis in these cases either throws the auricle into fibrillation and when digitalis is stopped the normal rhythm is restored, or the heart slows down directly into a normal rhythm with great improvement in the patient's condition.

The action of digitalis in flutter is a twofold one. There is an action on the auricle which disturbs the ectopic focus of impulse formation, which is responsible for the very rapid auricular beat, either in inhibiting it and allowing the normal pace maker to regain control, or by generally disturbing the auricle so as to produce fibrillation, from which normal rhythm is restored. In addition there is an action on the conduction system and ventricular muscle such as occurs in auricular fibrillation cases.

In these two forms of arrhythmia the effect of digitalis is more constant and more striking than in any of the other common types of arrhythmia.

In pulsus alternans frequently digitalis produces good results. In true pulsus alternans the pulse is regular in rate but every other beat is weaker than its predecessor (Fig. 6). In such a case the pulse rate may be definitely slowed by

digitalis (Fig. 7) with much improvement in the patient's condition. It is to be remembered, however, that a pulsus alternans is a sign of a very much impaired myocardium, and when the myocardium is greatly impaired the likelihood of functional improvement from digitalis is much decreased. To push digitalis in such a case may do much damage. Here it is particularly difficult to judge how far to carry digitalis therapy if no evident effect is produced. It would seem that in many of these cases the margin between no therapeutic effect and a serious toxic effect is a very narrow one. The same thing holds true for the rapid, regular, though decompensated heart.

In the rapid, regular, decompensated heart digitalis, when it acts, appears to have a three-fold effect. It slows the rate by increasing vagus inhibition and by increasing conduction time between auricle and ventricle (Fig. 8), and it strengthens heart action by some direct action on the myocardium and coronary circulation. This type of ease often seems definitely resistant to digitalis and the patient may take large amounts before any effect can be detected. It is always well to remember in such cases to watch the patient carefully, for sometimes the digitalis action, which has been long delayed, develops with great rapidity into marked activity so that the patient, who shortly before has shown no digitalis effect, quickly develops toxic symptoms.

In paroxysmal tachycardia there is very little evidence that digitalis produces any good effect. In sinus arrhythmia and in compensated hearts with ectopic beats or extra systoles digitalis is not indicated. Sinus arrhythmia is easily recognized by palpating finger or stethoscope as a rhythmic variation in interval between successive beats, frequently a rhythmical variation synchronous with respiration. Extra systoles or ectopic beats are familiar to you as dropped beats. Two beats come rather close together and

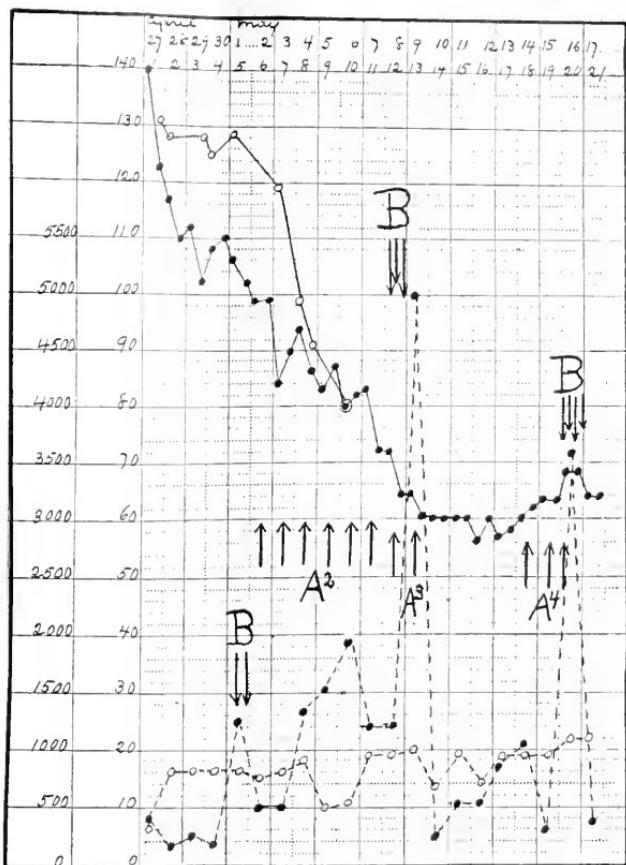


FIG. 4.—Patient with auricular fibrillation. Dots joined by solid line indicate radial pulse rate. Circles joined by solid line indicate apex rate. Dots joined by broken line indicate urine output in c.c. Circles joined by broken line indicate fluid intake in c.c. Arrows over A^2 indicate days on which the patient received three doses of 0.1 gm. each of powdered digitalis leaves. Arrows over A^3 indicate days on which the patient received two doses of 0.05 gm. each of powdered digitalis leaves. Arrows over A^4 indicate days on which the patient received three doses of 10 c. c. each of infusion of digitalis. Arrows under B indicate doses of 0.5 gm. each of theocin.

the second of these is followed by a lengthened pause. The extra systoles usually come at no fixed rate. Both these types of arrhythmia occur often in hearts with no other evidence of disturbed function, and their presence calls for no digitalis therapy. In decompensated hearts with a moderate number of extra systoles digitalis is indicated and acts much as it does in the decompensated heart with regular rhythm. When extra systoles are so numerous that cardiac decompensation appears to be largely a result of the arrhythmia, much caution is required in using digitalis because there is some evidence that digitalis at times increases the number of extra systoles and makes matters worse. However this question of the exact relation of digitalis to extra systoles is one still under discussion. In most cases extra systoles are more an

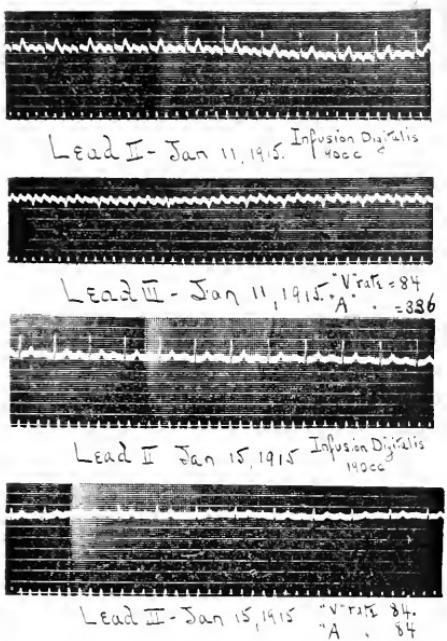


FIG. 5.—Electrocardiograms from patient with auricular flutter. Two upper curves show Leads II and III while in flutter. Two lower curves show Leads II and III after return to normal rhythm.

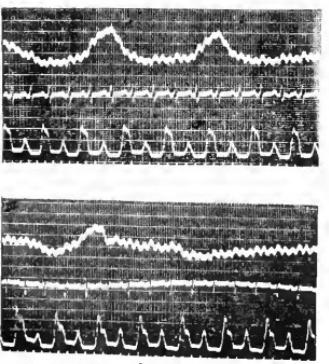


FIG. 6.—Curves from patient with pulsus alternans. Upper set of curves shows arterial pressure below, electrical pneumogram above and electrocardiogram from Lead II in middle. Lower set of curves shows same except electrocardiogram is from Lead III.

incident in, rather than a cause of, cardiac decompensation, and their presence can be neglected in considering the probable efficiency of digitalis therapy.

In cases of heart block not of digitalis origin, digitalis should be tried if the patient is decom-

pensated. Results are sometimes very good; at other times it would seem that the patient is made worse. Trial must be made to determine this. So digitalis should be applied, but caution in its use in heart block is necessary.

It is rather beyond the province of my part in this symposium to discuss the various forms of digitalis. However, it seems to me that the all-important things are to see that the form of digitalis used is an active preparation and to use it in sufficient dosage to get effects. In my own judgment various digitalis preparations are interchangeable in ratio of their potency, and consequently it makes no difference what form you use provided you use it in the proper kind of a case in sufficient dosage. Any form used by mouth will require more than 24 hours to produce an effect. A form of digitalis preparation suitable for intravenous use so introduced into the body will begin to produce an effect in a few hours, often within one hour, and this form is indicated where prompt actions are required. Subcutaneous use gives an effect less rapid and less certain than intravenous use. Furthermore, most of the preparations which are potent are apt to be irritating when introduced subcutaneously. It seems to me that when quick action is required or the patient is vomiting and cannot retain the drug, intravenous use is preferable to subcutaneous. In the hospital I have the apothecary purchase good powdered digitalis leaves, whose potency I find out by using them in patients such as cases of auricular fibrillation in which digitalis ordinarily works well. If I get good effects I know that lot of digitalis is potent. In the form of powdered leaves or freshly made infusion I find I can treat effectively the large proportion of cases with cardiac decompensation. For simplicity I use only these two forms of digitalis for mouth dosage. Occasionally a case requires a prompt action or is vomiting. In such a case I use strophanthin intravenously, with due regard to the necessary caution against using strophanthin in a patient who has been taking digitalis by mouth. Very occasionally it seems desirable to use some form of digitalis subcutaneously. For this I choose liquid digipuratum. I can see no advantage in multiplying the number of preparations of the digitalis group beyond this until new knowledge has come to throw light upon cardiac therapy which will enable us to select active components of the digitalis bodies to fit the needs of certain types of cases. As to dosage, relatively large doses should be used in periods of decompensation. With compensation restored very small doses continued over long periods certainly seem to be of great help in maintaining compensation. Much clinical experience supports this, and the recent electrocardiographic studies of Cohn and others show that the digitalis effect on the heart muscle is long continued after dosage has ended, and presumably with a continuation of small doses this effect is maintained.

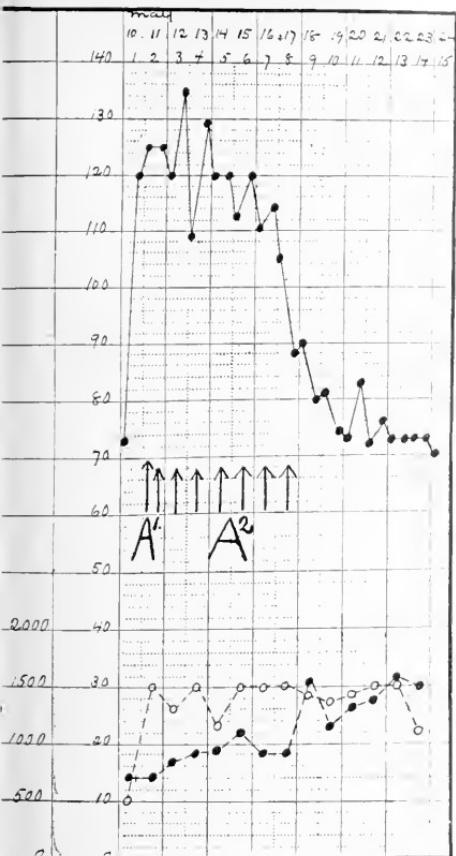


FIG. 7.—Patient with pulsus alternans. Dots joined by solid line indicate radial pulse rate. Dots joined by broken line indicate urine output in c.c. Circles joined by broken line indicate fluid intake in c.c. Arrow over A' indicates intramuscular dose of 1 c.c. of digipuratum. Arrows over A^2 indicate days on which the patient received three doses of 0.1 g.m. each of powdered digitalis leaves.

If you use a single digitalis preparation which you know to be active by mouth and use it in a dosage which you have learned to be effective it seems to me you have solved the problem for all cases except those requiring intravenous or subcutaneous digitalis therapy, and these latter are few. If, in addition, you have chosen a potent preparation for these occasional requirements, it seems to me you are in a position to toss into the waste basket all samples and literature on improved preparations of digitalis. You can reduce it to two forms, one for mouth use and one for intravenous use, and get as good results as any of your colleagues if you select the suitable

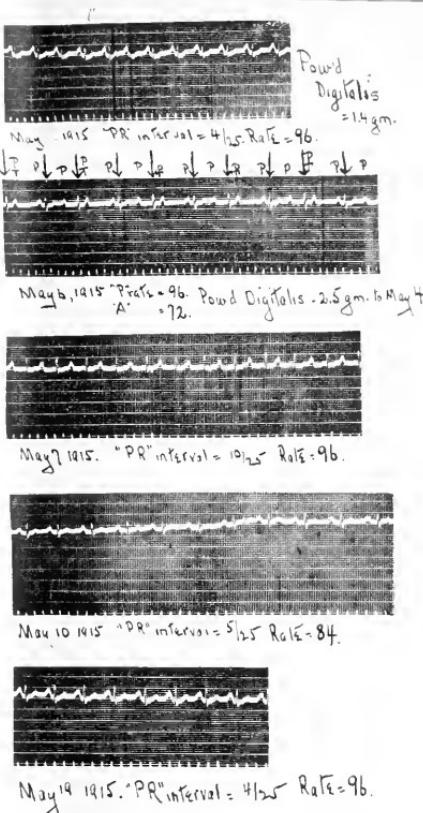


FIG. 8.—Electrocardiograms from patient with regular rhythm showing effect of digitalis on conduction time between auricle and ventricle. The second curve shows a partial block in conduction.

type of ease in which to push your digitalis therapy. One good preparation for mouth use with common sense and a knowledge of cardiac pathology and physiology will suffice for the successful treatment of most of your cardiac cases.

I would suggest that you have a reliable druggist keep in stock for you in powdered form a good digitalis leaf whose efficiency you know from using it on your own patients. From this leaf have him fill your prescriptions of pills of powdered leaf or fresh infusion. Equally well might you use tincture, but its preparation requires considerable time. Insist that your patients have their prescriptions filled by this one druggist. Doing this I believe you will improve greatly the results you obtain from digitalis, and digitalis properly used in cardiac disease is a most effective remedy, an all-sufficient answer to those who have no faith in therapeutic measures.

II.

THE RELATIONSHIP OF THE ABNORMAL HEART BEAT TO PROGNOSIS.

BY PAUL DUDLEY WHITE, M.D., BOSTON.

THE heart beats abnormally when there is any abnormality of its rhythm, conduction, or contracting power. Sometimes all three and frequently two of these three cardiac functions are defective. During the past few years much attention has been directed to the determination and interpretation of signs and symptoms of abnormalities of the heart beat. The value of various phenomena in estimating cardiac damage and in forecasting the patient's future is being studied and this study should yield steadily more and more guides for our assistance. The field is still relatively recent, but enough years have now been spent by such men as James Mackenzie and Wenckebach to render profitable a summary of the subject as we know it at the present time. We may consider the abnormal heart beat most practicably by taking up in detail disorders of rhythm, conduction, and contraction.

1. DISTURBED RHYTHM.

The most common disorder of the rhythm of the heart is the *premature beat* (the extrasystole of old). It may arise in auricle, ventricle or junctional tissues. (Fig. 1.) Mackenzie² claims that the premature beat adds practically nothing to his opinion of a case whether favorable or unfavorable. In a young healthy person a premature beat should not be a source of concern, even though it does mean that there is an abnormal irritability somewhere in the heart. People have lived comfortably through lives of hard work till old age with the constant companionship of premature beats for fifty years or more. Sometimes this irregularity can be traced to tobacco or to exhaustion and in these cases it will stop

when the causes are stopped. The finding of ventricular premature beats in old people who are growing short of breath or in younger people with high blood pressure or syphilitic hearts may be important, for here one may discover the significant *pulsus alternans* which not infrequently follows the premature beat in such cases.

The frequent association of the much less common type of premature beat—that arising in the auricle (Fig. 1b)—with auricular fibrillation and paroxysmal auricular tachycardia (including flutter of the auricles) causes one to regard this type as more important prognostically than the ventricular premature beat as a possible forerunner of more serious conditions.

Finally, there is a third and uncommon type of premature beat, that which arises in the junctional tissues between auricles and ventricles. This premature beat is unimportant and may be dismissed with the observation that it shows an irritable condition of the node of Tawara or bundle of His and may be classed prognostically with the ventricular premature beat. The differentiation of the types of premature beats is usually possible only by graphic methods.

Paroxysmal tachycardia (Fig. 2) is the next disorder of the cardiac mechanism to be considered, following in direct sequence after premature beats. It consists of a rapid repetition of premature beats, all arising in the same abnormal focus in the heart muscle. It is almost always auricular in origin and sometimes occurs in patients who later show flutter or fibrillation of the auricles. There are people who have paroxysms of tachycardia at intervals for many years and, provided the paroxysms are brief, enjoy good health. Here again, however, the heart muscle is shown to be irritable and to a higher degree than in the case of premature beats. The irritability often expresses itself only under some mental or physical strain. Without other signs of cardiac trouble than the paroxysmal tachycardia the patient may usually be reassured but warned against excesses.

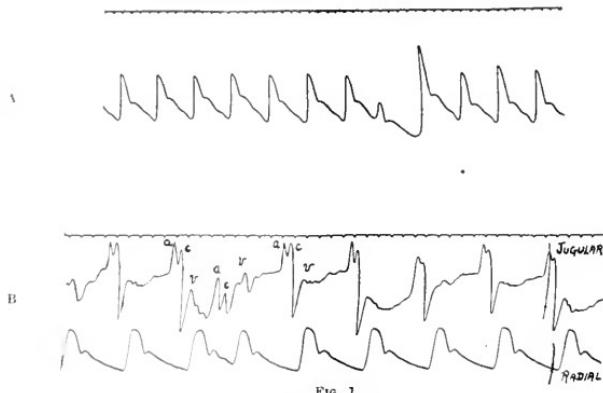


FIG. 1.
A. Ventricular. Radial pulse tracings showing premature beats.
B. Auricular. Jugular pulse proves auricular origin of the premature beat.
Time interval = 0.2 sec.



FIG. 2

Radial pulse tracing showing a brief paroxysm of tachycardia. Preceding the paroxysm appears a ventricular premature beat.
Time interval = 0.2 sec.

Closely associated with paroxysmal tachycardia is *auricular flutter*, which is an auricular tachycardia of high degree, almost always with a heart block associated with it. The prognosis is less favorable than in the case of simple paroxysmal tachycardia, the evidence pointing as a rule to more serious myocardial damage. In some instances, however, patients showing this condition may live comfortably for years after their return to normal cardiac rhythm. Of seven cases of auricular flutter seen at the Massachusetts General Hospital during the past ten months (August, 1914, to June, 1915) two have died (29%), one had auricular fibrillation when last heard from, and the other four have had recurrences of the flutter. Of the last mentioned four, one has now an atrioventricular rhythm (that is, a pacemaker situated in the junctional tissues between auricle and ventricle), another has frequent ventricular premature beats and alternation of the pulse, a third has so many paroxysms of flutter that she is incapacitated, and the fourth, although in fair health, has shown auricular premature beats between attacks. In distinguishing flutter from paroxysmal tachycardia graphic records are practically essential.

Now we come to the most important disturbance of rhythm—the absolute irregularity of the heart in *auricular fibrillation*. (Fig. 3.) The prognosis in this condition is extremely variable, being dependent on the condition of the ventricular muscle, which must bear the brunt of the irregular passage of the impulse from the auricles, and also dependent on the response of the patient to digitalis therapy. From the moment of discovery of this irregularity until death any length of time, from a few hours to many years, may supervene. In 1881 Potain, by tracings of the radial pulse, found the presence of absolute arrhythmia in a young externe of the Paris hospitals; in 1913, thirty-two years later, Heitz¹ by polygram, found

the fibrillation still existing in this man after an active professional life during which the irregularity had never ceased. Of 86 patients with auricular fibrillation seen at the Massachusetts General Hospital in the past ten months (August, 1914 to June, 1915) 14 (16%) are known to have died. Five are now living comfortably who have suffered in the past from the rather unusual paroxysmal type of fibrillation.

Sometimes a marked arrhythmia is produced through nervous influences acting directly on the pacemaker at the sino-auricular node. This so-called sinus arrhythmia usually is respiratory in origin, but may be due to factors such as increased intracranial pressure and to other causes not well defined. Although at times distinctly abnormal, this disturbance of rhythm as a rule has an extra-cardiac origin, and therefore should not impress one unfavorably with respect to the condition of the heart. Finally, disorder of the cardiac rhythm may be produced by heart-block, which should be considered under the second heading.

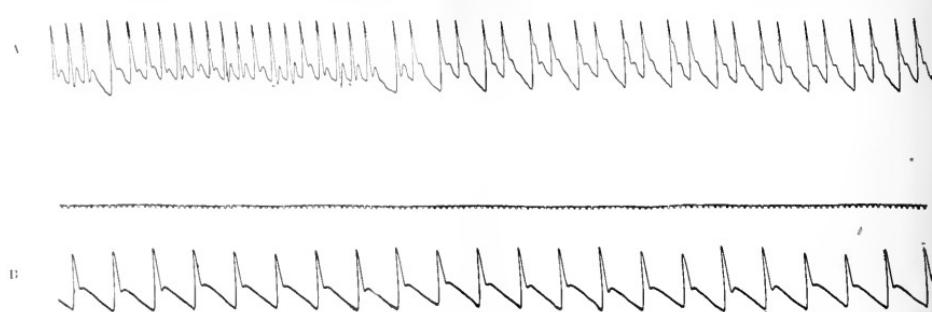
II. DISTURBANCES OF CONDUCTION.

All degrees of *heart-block* may be found from the simple prolongation of the interval between auricular and ventricular contractions, through the stage of dropped beats and 2 and 3 to 1 block, to the rare condition of complete heart-block. (Fig. 4.) Toxic block, usually transient, may be caused by digitalis and allied drugs, acute infection and asphyxia (shown experimentally). This type of block has little value prognostically, except in some cases to evidence a damaged bundle which has been easily depressed by the toxin. If the block is not traceable to toxic cause, but seems to be due entirely to disease or degenerative changes in the bundle, the prognosis must be guarded, for the block in such a case is but an



FIG. 4

Radial pulse tracing showing the absolute irregularity of auricular fibrillation.
Time interval = 0.2 sec.



A. Partial block. Early in the tracing there is a "dropped beat." Later every third beat is dropped.
B. Complete heart block. Rate = 42. Time interval = 0.2 sec.

index of widespread damage in the myocardium. The progressive nature of the destructive process may be followed easily in some cases by the observation of the evolution of the block itself from mild to more extensive grades. The Stokes-Adams syndrome is most frequent in partial heart block, with marked depression of the bundle at intervals. When the block becomes complete in such a case the patient may improve considerably and live comfortably for years. The prognosis of any case of permanent block, especially of the higher grades, should be regarded as grave, although in some instances years may elapse between the discovery of the block and death.

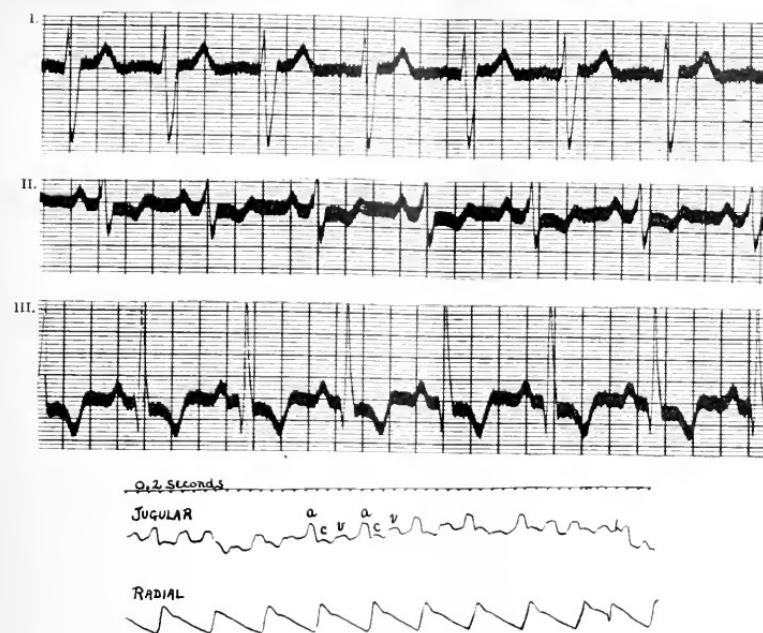
Not only may the main stem of the bundle of His be involved to produce a blocking of the cardiac impulse from the auricles, but also its branches, large and small, may be damaged. At present it is impossible to detect lesions of the smaller twigs of the conduction system in the ventricle, but it is possible by electrocardiograms to recognize gross defects of the two main branches, right and left, which go to right and left ventricles respectively. The left branch is involved much less frequently than the right. At the Massachusetts General Hospital, in the past eight months, of twelve cases of bundle branch defect only one has been of the left branch. The main stem of the bundle of His in such cases may not be damaged sufficiently to cause delay between auricular and ventricular contractions, and the pulse may be perfectly regular at a rate close to 70 per minute. (Fig. 5.) The hidden damage is, however, revealed by the electro-cardiogram and is of considerable value prognostically. Any beats in which there is defective conduction in the branches of the bundle of His are called aberrant, thus indicating the abnormal distribution of the cardiac impulse in the ventricles. Reduplications of the heart sounds may accompany these branch lesions, in which one ventricle receives the impulse appreciably before the other. As in the case of lesions of the main stem, so lesions of the branches of

the bundle evidence widespread myocardial damage and are found usually in sclerotic hearts. Two of the twelve patients with branch lesions at the Massachusetts General Hospital have died within eight months of the time when the lesions were discovered; several of the survivors are in poor condition at the present time.

III. DISTURBANCES OF CONTRACTING POWER.

Finally we come to abnormalities of the contracting power of the heart. Weakness in the contraction of the heart muscle is often associated with defects in rhythm and conduction. The coexistence of considerable abnormalities of two or of three of these properties of the heart increases the gravity of the prognosis (for example, heart block or arrhythmia combined with myocardial weakness). Defect in the contracting power of the heart may itself be enhanced by disturbance of the rhythm, as in the rapid irregular action of auricular fibrillation. Help may come on the other hand if the conductivity of the heart is defective—such defect may be artificially produced through the administration of digitalis. In the estimation of myocardial exhaustion the symptoms and general physical signs of the patient taken collectively are of much value and are generally used as the criterion of the cardiac condition: dyspnea on exertion, weak heart sounds, edema of extremities and lungs, and cyanosis. But the history of the frequency of "cardiae breaks" and the way in which the patient reacts or has reacted in the past to rest and digitalis must control one's prognosis.

It is in the doubtful cases showing little else than arrhythmia, palpitation or slight dyspnea on exertion that oftentimes one is most interested in the prognosis. Swan⁴ in a recent investigation, in a series of cases, of several methods which have been proposed as guides in the determination of incompetence of the myocardium in doubtful cases, concludes that two of the methods have more value than the others, namely



Graphic records from patient showing defective conduction in the left branch of the bundle of His.

A. The three electrocardiographic leads.

B. Radial and jugular tracings, showing an absolutely regular pulse with slightly prolonged a-c interval.

Time interval = 0.2 sec.

Tigerstedt's efficiency factor, which is found by dividing the systolic pressure multiplied by the pulse rate into the pulse pressure multiplied by the pulse rate, the other method being the determination of the percentage of pulse pressure formed by the second auscultatory phase. He considers as abnormal figures of 40% or more in the former and 30% or less in the latter test. It is very doubtful, however, whether these methods will prove of real worth; in some cases at least they are contradictory and in others far from convincing. Continued study of the blood flow in the determination of the time volume of the heart beat may yield in the future indications of value in the estimation of the efficiency of the heart.

Moritz³ has recently summarized the present status of clinical signs of beginning heart weakness, and concludes that nearly all signs or symptoms taken alone have little value, and that one must study a case from all angles in order to make a fair estimation of the heart's strength. He does not consider the size of the pulse or the blood pressure as reliable signs which can be interpreted at present. He is inclined to lay more stress on venous pressure as evidence of stasis, on the persistence (especially during sleep) of increased pulse rate following exercise, on nocturnal dyspnea, on the gallop rhythm of the heart, and on abnormal sensations in chest and arm. He pays little attention to the character of

the pulse because of its considerable modification by local conditions of the artery. On the other hand there is one condition of the pulse which is an important evidence of exhaustion of the myocardium—that is the variation in force of the pulse beats found either with absolute irregularity in some cases of auricular fibrillation or alternating regularly in some cases with normal rhythm. In the first instance the arrhythmia itself points to an abnormal heart, but in the second the pulse may be perfectly regular or interrupted only occasionally by ventricular premature beats. The alternating character of the force of pulse waves is best seen on radial tracings and gives the condition its name of *pulsus alternans* (Fig. 6). Alternation of the pulse is one of the most important signs which we possess of defective power of contraction of the heart and has been shown by Mackenzie and others to be of very great prognostic significance in cases not showing paroxysmal rapid heart action at the time (in such cases there may be temporary exhaustion from the rapid rate). The alternation may exist in individuals obviously mortally ill but also in cases in which one sometimes would doubt the presence of myocardial weakness. Patients who show *pulsus alternans* usually survive but a few years at the most, the longest case on record being one of Tabora's⁵, living six years after the alternation was first discovered. Of 83 patients with *pulsus alternans*

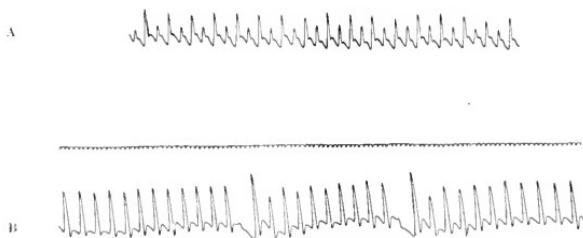


Fig. 6.
Radial tracings showing alternation of the pulse.
A. Constant *pulsus alternans*.
B. Post-premature beat alternation.
Time interval = 0.2 sec.

and heart-rate below 125 and as a rule below 100 per minute, seen at the Massachusetts General Hospital in the past ten months (August, 1914 to June, 1915) twenty-six are known to have died—that is nearly one-third, which is twice the death rate of cases with auricular fibrillation during the same length of time. Whether we accept the theory of Wenckebach, that alternation of the heart is due to an alternating total hypostole, or the theory of Gaskell and Hering, that it is due to an alternating partial asystole resulting from the prolongation of the refractory phase of the muscle fibres, at any rate we can feel certain that the *pulsus alternans* is evidence of defect in the contracting power of the heart.

SUMMARY.

Of disturbances of the rhythm of the heart beat, auricular fibrillation (absolute irregularity) and auricular flutter have the gravest prognosis, for not only are these conditions indices of myocardial damage, but they themselves increase the difficulty of the circulation by their rapid driving of the heart. Sometimes, however, many years may elapse before the death of these patients. Of 86 cases of auricular fibrillation seen at the Massachusetts General Hospital 16% are known to have died within ten months of discovery. Premature beats and paroxysmal tachycardia are compatible with a long and active life, but their frequent association with cardiac damage should lead one to be a little cautious in prognosis.

Permanent damage to the atrioventricular bundle of His or its branches is evidence of widespread damage to the myocardium. Hence the prognosis of a patient showing such a condition should be guarded.

Defective contraction of the heart as shown by familiar symptoms and signs, has a prognosis dependent on the number and degree of these symptoms and signs, plus a consideration of similar trouble in the past and of the way in which

the heart responds to rest and digitalis. Of all the individual signs of abnormal contracting power of the heart *pulsus alternans* is one of the most important and consistent. Of 83 cases of alternation of the pulse seen at the Massachusetts General Hospital 31.3% are known to have died within ten months of discovery.

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- 4 Swan, J. M.: Arch. Int. Med., 1915, Vol. xv, p. 269.
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III.

THE TREATMENT OF HEART DISEASE.

BY F. C. SHATTUCK, M.D., BOSTON.

THE treatment of heart disease, the subject assigned to me, is no small one. Respecting, therefore, time and place, it will be my effort this afternoon to deal with principles rather than details. Congenital heart disease I shall not discuss.

The treatment of heart disease.

In the first place, we rarely treat heart disease. In rheumatic endo-pericarditis we use the salicylates, though, at least as far as my experience goes, they have no such control here as they have over rheumatic arthritis. If I am right, a possible explanation may lie in the fact that the heart cannot rest as the joints can. Some syphilitic hearts are greatly benefited by potassium iodide. Which these can be rarely known. We must try. With salvarsan in luetic heart disease I have no experience, my hospital life having closed three years ago. Dr. Sears tells me he has had brilliant results from its use in some cases, notably in aortitis, and in endocarditis of combined luetic and rheumatic origin. I trust we may hear more on this most important point. The discovery of the pale-faced spirochete has greatly enlarged and clarified our knowledge of cardiac syphilis.

The weak heart, which may follow almost any form of acute infection, needs imperatively rest and time; the latter may be abridged by wise medication.

Were I to obey the letter rather than the spirit of the invitation of our distinguished chairman, I should stop here, inasmuch as, except as above stated, we do not treat heart disease, but patients with diseased hearts. Sometimes the patient occupies the foreground, sometimes the heart; but both are always there, interdependent, and the best results are obtained only when the claims of each are duly weighed and welded.

But let us pause for a moment. The first step in making a hare soup is to catch the hare. Before treating a heart as diseased, let us be sure it is such. A disordered heart may be in no way diseased, though a diseased heart may be also disordered, and then offer a very pretty problem as to which of these elements is pre-potent at a given time. Hearts remind me somewhat of boys. A boy may act like the very devil and yet be a good boy—yes, a first-rate boy. Such boys are to be cured by a study and change of their environment; disordered hearts in like manner, by searching out and removing near or remote foci of reflex irritation. I am led to touch on this point by having seen many patients dosed with digitalis, strychnia, etc., apparently solely because the heart was rapid, irregular or intermittent. A number of years ago, an eminent and valued member of our profession consulted me about his heart, which was troubling him, asking whether his was a heart to exercise or to rest. I decided in favor of exercise, and his vigorous condition today shows that my guess was happily right.

Allow me to pause another moment. The heart is a single organ, unlike the lungs and some of the glands total loss of one of which may not be really crippling. Like the lungs, the heart can never have absolute rest, as can the stomach. The healthy heart has an enormous reserve power and a wonderful capacity for adapting itself to changes, extrinsic or intrinsic, especially if such change is gradual in development. Its tolerance of insult is far greater than we realized until recently. Dr. Cushing tells me that after rifle shots through the heart, even the thin-walled auricle, recovery has taken place in the war now in progress. We can determine the condition of the valves with surprising accuracy, but the valves are passive, so to speak. It is the heart muscle which is active and vital, and its condition offers far greater difficulty of diagnosis. That this should be so during life is not to be wondered at, when we see the pathologist often hesitate with the heart in his hand, and fail to get adequate knowledge even with his microscope, as to why the heart gave out.

Let us now assume that we have a diseased heart to deal with. I was brought up to be chary of telling people that they have heart disease,

but I became convinced long ago that, while it is best to be frank as to the indisputable facts, we should be as optimistic as to the outcome as the facts will warrant. We can usually be very sure as to whether or not a heart is diseased in fact. How long a given heart will last is so often a matter of opinion, and therefore liable to great error. The patient should have the benefit of all the doubt. Even if compensation is good and the lesion apparently non-progressive, the patient should so live as to maintain myocardial nutrition. This he is far more likely to do if he knows, and in a broad way understands, the reason for so doing. Nowhere more than in cases of heart disease is the intelligent coöperation of physician and patient essential to the best results. In fully compensated cases direct treatment of the heart is practically never called for.

When compensation is inadequate the treatment of the patient does not lose in importance and may be easier to carry out, inasmuch as he better realizes the need of help—is more ill. But now treatment of the heart itself, direct treatment, is called for in addition.

Of myocardial failure there are all grades in degree and gravity alike. The cause of failure may be a most important factor in aligning treatment. There is thus room for great judgment and acumen. Mere routine, like a "man-hole cover in anger is ten times worse than hell."

The major marks of myocardial failure are edema, pain and shortness of breath. The latter is common to the first two, but may be the leading symptom, especially in cases of mitral disease at or near the margin of compensation. Let us consider edema and pain separately, in the hope of saving time.

The gravity edema of heart disease suggests dilatation of the right ventricle as a whole, and is usually secondary to mitral disease, with which aortic or trienspid lesion may be combined. It is our aim to promote and restore, as far as may be, myocardial efficiency. There are, broadly speaking, two ways open to us:—

(a) The indirect—reduction of the load of the heart.

(b) The direct—stimulation of the heart power.

Under (a) comes first and foremost rest, to such a degree and for such a time as the individual case may seem to require. It is better to underdo at first, rather than to overdo, as err at times we must; but in non-fatal cases the time is apt to come when a measure of exercise promotes myocardial nutrition.

Moreover, is it not possible that a reason why mitral stenosis is so much more common in women than men is that non-active female life gives a better chance for smouldering inflammation to glue together the edges of the valve curtains? In passing I merely allude here to the obese heart, which we exercise at the same time that we reduce its load by diet and other means.

How blessed may be a narcotic or hypnotic in securing rest! Morphia is *facile princeps*. Massage, active, passive, and resisted movements, skilfully applied, may do vicarious heart work. Watery catharsis does not weaken the dropsical heart patient, and it may be well to explain this to him. I am inclined to think we are not always bold enough in our use of hydragogues. Serous effusions, if marked or obstinate, are to be tapped. Drainage of the legs by Southey's tubes or a modification thereof may be a help. In cases of markedly over-distended right ventricle, and in these cases cyanosis is usually pronounced, venesection up to a pint or more may be the first procedure indicated. The effect is sometimes almost miraculous. A dozen leeches, followed by poulticing their bites, may have a similar effect in relieving the right heart and be a substitute for venesection, if this is for any reason thought to be undesirable. One of the upper quadrants of the abdomen is a convenient place for leeching. Bleeding may pave the way for direct cardiac treatment, digitalis, which was of no use before relief of the right ventricle, manifesting its power thereafter.

In all cases of heart dropsy we watch closely the amount of urine and are apt to try to increase it. The dropsy is not only a measure of cardiac efficiency, but also a hindrance thereto.

The diuretic action of calomel seems to be due, at least in part, to its effect on the renal cells. I avoid its use for this purpose if I believe the kidneys to be subject to more than passive congestion. I have seen a single dose of calomel salivate a nephritic. As a cardiac diuretic I have been in the habit of giving three grains of calomel every four hours, enjoining special care of the teeth. Given thus, it does not seem to affect the bowels. If it acts on the kidneys at all it usually does so on the second or third day, though I have seen the effect first appear on the fifth.

The diuretic action of caffein and its first cousins, diuretin and theocin, is thought to be largely of vascular origin, though a direct action on the heart itself, cannot, I think, be as yet absolutely denied. Diuretin, in my experience, has never been of avail in renal dropsies. In those of cardiac origin its effect may be temporarily very gratifying. I have been led to attach value to its action or failure to act in cases of cardio-renal dropsy as an aid in deciding whether the cardiac or the renal element is predominant at a given time.

The objection to the alkaline diuretics is that their use runs counter to the dry diet which is ordinarily desirable when the blood mass is too great. Fluids are to be limited, as far as is compatible with the comfort of the patient, and the resourceful physician will secure tolerance and a greater fluid restriction than the routinist. Otherwise diet should be nutritious, easily digested, moderate in amount. Gastric flatulence is to be avoided or counteracted.

There are cases, and times in the course of

cases, in which I believe wine or spirits, wisely used, to be of real service. Alcohol, unlike the rapid cardiae stimulants, such as camphor, aromatic ammonia, and ether, has some food value—calories, in modern parlance.

Direct stimulation of the myocardium is ordinarily desirable or necessary in conjunction with efforts to reduce the load. The members of the digitalis group are diuretics only in so far as they act on the myocardium, increasing its power, and thus raising the blood pressure. It is to this group that we look for direct and lasting myocardial stimulation. At its head stands, of course, digitalis, the many preparations of which and the dosage, varying in size and frequency, I pass over, simply noting the advance in recent years in standardizing digitalis. The only other members of the group worth mentioning here are strophanthin and apocynum. I have known each of these to succeed after digitalis had failed. I know no digitalis preparation which can produce such a rapid effect as strophanthin and eymarin when given intravenously, and perhaps, also, intramuscularly. The latter drug I have never used.

As a rule, it seems to me better to give only one of the members of the caffein or digitalis groups at a time, pushing the dose until either the desired effect is produced, or there is evidence that the system is under its influence. This I think a great therapeutic law, applicable broadly to all active drugs. Exceptionally, however, judicious combinations seem to work better than the single remedy. Let me repeat here that we can only guess as to whether myocardial change is of such nature and extent as to be possible of repair or compensatory adjustment. Therapeutically, therefore, is it not wise to assume that some measure of such power is present, and try to call it forth? Is there one of us who has not found himself mistaken in both directions? In the long run, it is better to err on the hopeful side.

(b) The second major mark of cardiae failure is pain—angina.

This, as contrasted with edema, is suggestive of degenerative change, usually of the left ventricle, perhaps very local, and is the result of impeded coronary flow, to which spasm is super-added. Physical signs may be absolutely lacking, and diagnosis rest practically on a single symptom. I am inclined to think that angina is not recognized as often as it should be, some thinking that the pain cannot be of that nature unless agonizing. The pain is of all grades.

Although arteriosclerosis is common enough in hospital wards, we rarely there, or even in the out-patient department, see angina. The spasmodic element seems to be enhanced by a higher development of the nervous system than is common in hand workers. The treatment of anginal conditions falls into two natural divisions—that of the attack, mainly palliative, and that of the prevention of other attacks. A patient subject to angina should never be without a nitrite

ready for immediate use. I generally advise glonoin tablets as being, on the whole, more convenient. But amyl nitrite sometimes works better. It may be well to give a small dose before a necessary exertion, especially if this soon follows a meal, as a prophylactic against pain.

But the all-important therapy of angina, whether grave or relatively benign, is the regulation of the mode of life. The innocent and the grave cases vary more in prognosis than in therapy. Every effort should be made to avoid bringing on pain. In some cases it may be well to put the patient to bed for a week or two. Ordinarily, it is sufficient to limit activity to that which is compatible with comfort, remembering that upward inclines, a head wind, especially if cold, a full meal, straining at stool, venery and emotional vagaries are all inimical. More or less of these the intelligent patient finds out for himself. But it is our business to go into details, hoping through patient and persistent precaution to bring about, sooner or later, such adjustment or compensation in the heart as may markedly prolong life and render it very tolerable. Here, as in other aspects of the senile heart, the sum of small advantages may add up to very great therapeutic value. Diet, bathing, occupation, temperament, are all to be carefully considered.

It does not seem to me that tobacco should be absolutely and always interdicted. A sick man should not be deprived of any legitimate consolation, and the varying tolerance of tobacco by different people is notorious. A smoking doctor is likely to be more merciful than a non-smoker, but each should be on guard against his personal prejudices.

The details of medicinal treatment of true angina depend somewhat on its origin—whether this be infectious or non-infectious, and if infectious, whether of luetic or other origin. Medicinal treatment is usually of minor, though still of real importance. Strychnia is to be avoided as tending to heighten reflex excitability. Digitalis is indicated only so far as myocardial failure is suggested by symptoms other than pain. Small doses of potassium iodide can seldom be harmful, and seem to be of value even in non-luetic cases. How far this value is suggestive in origin is hard to say. The average patient today is no less willing to carry out other directions when reminded three times daily that he is under medical supervision.

The action of glonoin is so transitory that its value between attacks is doubtful. If it be desirable, as I believe to be rarely the case, to try to secure constant reduction of blood pressure, sodium nitrite or erythrol may be used. With mannitol I have no experience.

The senile heart deserves a chapter to itself. An essential fact is that the changes which underlie it are degenerative, and tend to be progressive. We cannot hope for cure. Proverbially, we cannot add a cubit to our stature by taking thought. But we can add years of com-

fort and activity to life by taking thought for people with crippled hearts, especially if we succeed in inducing them patiently, persistently, cheerfully, intelligently to adapt their lives to their powers. For various reasons this may be, in whole or in part, impossible. We can only do our best. Pathetic, literally heart-breaking, is the case of the busy country practitioner with angina, dependent on his work for support, cranking and driving his own motor by night and day, at the beck and call of those far less ill than he.

DISCUSSION.

DR. JOHN SPROULL, Haverhill, Mass.: The duty of opening the discussion on the preceding papers was allotted to me by the chairman of this section. I do not think that there can really be any discussion, as far as difference of opinion is concerned, on the essential facts presented in either of the papers, so that the discussion can serve only to strengthen the presented ideas by perfect agreement or by presenting auxiliary facts and phenomena, showing the essentials from a different viewpoint. For that reason I can but state my own experience so far as related to the subject under consideration.

I do not know what influence digitalis has on the cardiac irregularity known as sinus arrhythmia, this being a physiological and not a pathological arrhythmia; I have not considered it of any importance apart from the question of diagnosis. I have not seen any benefit from digitalis in any form in premature contractions. I have many times, and do even now, occasionally try it out, believing that my observations, as to its lack of effect in previous cases, may have been fallacious, but I have always had to discard it as throwing an extra and needless load on the heart and digestive organs. My experience in pure paroxysmal tachycardia (of other than goitre origin) has been very limited, for in two years, I have seen but two genuine cases and neither was benefited by digitalis.

In heart block, I believe that in mild heart block, showing only some lengthening of the a-v interval, or an occasional dropped beat, associated with a weakened condition of the myocardium, digitalis may do good work, but in profound heart block, such as a three-to-one block, or in complete dissociation, I have not seen any benefit from its use, nor can I see the logic of its use in this condition. I have never been able to convince myself that any benefit could be derived from slowing a ventricle below 30 to 35 beats per minute, which is about the ventricular rate of complete dissociation.

I have had no experience with auricular flutter and very little with cases presenting pulsus alternans. Of the latter condition I have seen but three undoubted cases in two years and no benefit was derived from any drugs.

My experience with digitalis, however, is altogether different in auricular fibrillation, for it is

in this condition, above all others, that I have observed the most marked benefits from its administration. If one might talk of miracles, one might almost feel that in this cardiac irregularity digitalis works miracles. I have known its effect to be most marvelous, rescuing people who were almost moribund.

Its mode of action and its proper administration are so closely associated that one cannot discuss the one without touching more or less on the other.

Most cases of auricular fibrillation are seen in the condition of so-called dilatation of the ventricle, and how this condition of dilatation (which I believe is synonymous with exhaustion and loss of tonicity) is produced gives us some clue to the action of digitalis in this arrhythmia. The condition of dilatation of the ventricle is produced by the response of the ventricle to the excessive number of erratic stimuli originating in the auricle, and the action of digitalis would seem to be that of giving rest to the ventricle, either by blocking the passage of erratic stimuli by a selective action on the bundle of His, or by prolonging the refractory period of the ventricular muscle during diastole or by a combination of both methods. At least one may say that by digitalis the response of the ventricular muscle to the erratic stimuli originating in the auricle is prevented and the ventricle thus is rested and given an opportunity to recover its tonicity.

In the clinical use of digitalis, sufficient doses should be given to reduce the ventricular rate to somewhere near the normal and digitalis should be continued in dosage sufficient to maintain the normal ventricular rate, whether this entails its administration four times a day or once a day as long as the individual lives. By this method only can we, in my opinion, get the full benefit from the administration of digitalis, for auricular fibrillation is an incurable condition and the best we can do is to prevent its evil influence on the ventricle, and that we can often do by the continued administration of digitalis. It is well to remember that as far as we know at the present time digitalis does not have any such influence on the fibrillating auricle as it has on the dilated ventricle, and an auricle fibrillation once established is usually present for life, and that digitalis is useful not only as relieving the exhausted condition of the ventricle, but also in preventing the recurrence of this condition.

The prognosis of the various cardiac arrhythmias from two aspects:—

First. As to the cure of the condition.

Second. As to its effect on the life of the individual.

I can only agree with everything that Dr. White has said and state my own experience in some arrhythmias.

Premature contractions are usually not of serious import, if this is the only form of cardiac irregularity present. The prognosis of them, as far as life is concerned, may be disregarded, but

the prognosis as to their cure and removal is not very good in my own experience. I have had, however, two cases where premature contractions came in such frequency and there were such clutters of them that I believed that they contributed greatly to an exhausted condition of the heart muscle.

I have not seen enough paroxysmal tachycardia or auricular flutter to be able to give you my own results.

Of pulsus alternans I have seen but three undoubted cases in two years and they are all dead. My experience with heart block is that the underlying condition of degeneration of the myocardium or the associated arteriosclerosis should govern the prognosis. I do not think that the mere presence of heart block, except in so far as it is an indication of injury to the myocardium, can influence the prognosis. I feel hardly competent to speak as to the cure of heart block in young rheumatic hearts, for it can be only after an observation of a great many of them, for years, that one can feel that there has been complete recovery.

In elderly people with heart block and even complete dissociation, I have a number who have passed through the period of convulsions and are now living out their allotted span in comparative peace and comfort. One of these individuals showed convulsions due to heart block at 84 and is now enjoying 86 years of life.

The prognosis of auricular fibrillation is very complex and is dependent mainly on the response of the individual to digitalis.

As to cure of the fibrillation—that is impossible, for as far as science is concerned, at present there is no known drug which will change an incoördinate fibrillating auricle back to a coördinate contracting one.

The prognosis, as to the life of the individual, depends on two conditions:—

First. Is the fibrillation an abnormal rhythm associated with organic changes in other organs, as the liver and kidney?

Second. Do moderate and infrequent doses of digitalis keep the ventricle in condition?

Obviously it renders the prognosis much more serious if, in addition to the fibrillating auricle, you have organic changes in the kidney or liver, interfering with the functioning of the cardiac muscle, and obviously, also, if digitalis does not prevent the evil effects of the auricular fibrillation on the ventricle, then there is at present no other successful method of doing so, and the prognosis, as to the life of the individual, is rendered correspondingly more serious.

DR. F. W. PALFREY, Boston: The papers of Dr. Christian and Dr. White show adequately the close scrutiny that has been brought to bear upon the study of heart disease in recent years. Hearts which were formerly grouped as regular or irregular have, as has been repeatedly shown today, been separated among the different types

of irregularity. It has been shown that sinus irregularity does no harm; that the extra systole in itself is comparatively unimportant. Paroxysmal tachycardia is in doubt. Auricular fibrillation and flutter, heart block and alternation are of serious importance. But in considering these types of irregularity I think it is still to be remembered that an irregularity, like a valvular lesion, is only a factor in the total incompetence of the heart, and that it is from disturbance of contractility or tonicity, under which comes the dilatation of the heart long recognized, that cases of heart disease in majority die. Many heart cases die without incoordination of their chambers. Many cases of auricular fibrillation improve greatly, even though the auricles continue to fibrillate.

In decompensation with lessened ability of the heart to contract and loss of tonicity, the contraction of the heart at a disadvantage from distention of its chambers is a factor which should not be disregarded. In this connection I was glad to hear Dr. Shattuck's emphasis upon the value of venesection. Venesection is a measure which was formerly much used, but since its discontinuance following Virchow's condemnation of it in pneumonia, I am quite sure that the use of venesection outside of hospitals, and perhaps even in them, is too infrequent. Venesection perhaps has become a measure against which there is popular prejudice. But those who have used it in acutely incompetent hearts I think will agree with me that it is a measure which ought to be emphasized and more widely used than it is.

DR. JOSEPH H. PRATT, Boston: I think that many of us do not realize the frequency of these conditions which we have heard discussed this afternoon. The terms used—auricular fibrillation, auricular flutter, extrasystoles, and pulsus alternans—are new, but the conditions are old, and we have all seen many examples of them, but they passed unrecognized because we did not use the newer methods of study. Now, I made an interesting clinical investigation this spring with the aid of four senior students. In the outpatient department of the Massachusetts General Hospital, through the courtesy of the staff, I was allowed to examine and study all cases with suspected heart disease admitted to the male and female medical rooms. During a period of two months we made routine examinations with the polygraph and the teleradiograph, and through the coöperation of Dr. White many of the cases were examined with the electrocardiograph. During that period we saw and examined a hundred and fifty patients with cardiac disease, and among these we found no less than sixteen per cent. with auricular fibrillation, sixteen per cent. with extrasystoles, two per cent. with auricular flutter, four per cent. with pulsus alternans, and ten per cent. with delayed conduction or partial heart block. There were fifty-eight cases, that is, over thirty-three and a third per cent. of all the patients that came there, who

had arrhythmia of one sort or another. In forty-one per cent. of these cases, the irregularity was due to auricular fibrillation.

Now these figures show the frequency with which these conditions occur in ordinary daily work. Many of the patients had slight evidence of cardiac disease. I remember very well the first day of our work, a woman came in who was slightly short of breath, but on the ordinary physical examination nothing abnormal was found about her heart. Simply as a routine procedure I made a polygraph-tracing and found there was delayed conduction. This observation was confirmed by Dr. White with the electrocardiograph. The delayed conduction meant that the patient had a myocardial disease and justified the diagnosis of chronic myocarditis. This could not be recognized in any other way.

I think that the polygraph should be used by every physician who intends thoroughly to study his cases of cardiac diseases. With a Dudgeon-sphygmograph provided with a time marker, a great deal of information can be obtained which is impossible by palpation of the radial pulse. Dr. Christian justly emphasizes the importance of educating the finger to recognize auricular fibrillation, but he must admit that there are some cases of auricular fibrillation in which the interval between successive beats is so slight that it cannot be recognized by the unaided finger. In the diagnosis of pulsus alternans, a radial pulse tracing is necessary because many of the cases of pulsus alternans will not be detected by the palpatting finger. Dr. White has clearly shown that the recognition of pulsus alternans is important, because this condition indicates a serious weakness of the heart muscle. With the polygraph, delayed conduction from the auricle to the ventricle can be made out, and this may render possible the diagnosis of acute or chronic myocarditis that might otherwise escape detection.

The frequency of myocardial disease was another point brought out by our study. It was only a few years ago that teachers and text-books paid very little attention to myocardial disease in the absence of valvular disease. By the use of modern methods, we found that primary myocardial disease, with intact valves, is far more frequent than is commonly thought. There were no less than sixty-three cases of cardio-sclerosis in our series. Only seven of these had nephritis. There were more cases of primary myocardial disease than of valvular disease.

I think the recognition of pulsus alternans, which occurs frequently after extrasystoles, as Dr. White has shown, is of distinct value in diagnosis and prognosis. If I am not mistaken, he has observed more cases of pulsus alternans than any other investigator has reported.

Just a word in regard to treatment. Dr. Christian has shown very clearly what digitalis in large doses can accomplish. He has used from the opening of his clinic active preparations of digitalis, and in larger amounts than have been

employed by most of the physicians in this vicinity. In 1910 I reported before this section a study of the preparations of digitalis used in Boston in the hospitals and dispensed by leading druggists. These were carefully tested physiologically in the laboratory and only one single specimen was found that was active in the ordinary doses. At that time I called attention to the titrated powdered digitalis leaf prepared by Caesar and Loretz of Halle, Germany. I have found it as satisfactory as digipuratum for general use and far less expensive. I should like to know what preparation Dr. Christian is now using. In private, as well as in hospital practice only preparations made from active digitalis leaf of known strength should be used.

DR. CHRISTIAN: In regard to the question of Dr. Sproull, as to whether digitalis will stop pulsus alternans, usually no, sometimes yes. The patient who responded so well to digitalis, whose chart and tracing I showed you, had marked pulsus alternans on the 11th. The chart began on May 10, and I took tracings of the patient on yesterday, and there is no trace whatsoever of pulsus alternans. That is the exception. Usually the pulsus alternans will resist the digitalis, but the heart will become functionally more efficient, except in those cases in which the myocardial disease is extensive, and I spoke of this in cautioning one against pushing digitalis when a patient of this group is not under close observation, on account of the occasional rapid change from therapeutic action to marked toxic action. Usually the digitalis does not do away with the pulsus alternans.

In regard to the venesection that Dr. Shattuck and Dr. Palfrey spoke of, I should like on my part to emphasize that as a very important procedure, and point out to you the great ease with which you can bleed a patient at the present time. With the methods that we use for obtaining blood for a Wassermann reaction it is possible to bleed a patient without any incision and practically without any pain. You can bleed a patient four or five hundred c.c. with the utmost ease, and if you have any doubt as to whether you should make your patient anemic or not, don't bother about it. It is quite possible later to transfuse the patient, and restore the amount of blood if necessary. There are a great many immediate advantages in venesection.

In regard to Dr. Pratt's question as to the preparation of digitalis which we use. We used Caesar and Loretz's standardized digitalis leaf, but it became a little more difficult and expensive to obtain that on account of the war conditions, although it is still possible to get the preparation. I thought it was worth while on our part to see what we could do with home products, so I had our pharmacist write to one of the well-known manufacturers of drugs and tell him that we wanted a specimen of powdered digitalis leaves, and we wanted him to send us an effi-

cient preparation because we were going to test it in the laboratory, and we were going to test it in the wards, and if it wasn't good we were going to send it back and would not buy drugs from him. The result was that the first bottle of powdered leaves, when we tested it out in contrast with Caesar and Loretz's preparation on frogs, seemed just a trifle less efficient, but really very little different. We used it in the clinic and got just as good results on our patients as we had gotten before with Caesar and Loretz's leaf.

We have reduced our digitalis therapy to very simple terms in our own clinic. We use but two preparations by mouth, powdered leaves and infusion. We use one preparation intravenously (strophantin) when we want to get immediate effects, and occasionally, if for some reason we want to use a subcutaneous intramuscular dose, we use a third preparation (liquid digipuratum) for that. We do not use the tincture for this reason: the infusion can be made in a very short time. The tincture has to percolate for twenty-four hours after it begins to run, and this is a little bit more trouble and takes a little bit more time. I believe ordinary tincture that is put on the market is very often inefficient. If you know that a druggist has got a good preparation of powdered leaves of digitalis, send all your patients to that druggist and have him make up the infusion every time the patient brings his prescription, or make the pills each time. As far as the leaves are concerned, you can use them as powder to put on the end of the patient's tongue, to take down with water. Until we know more about the specific action of the various alkaloids that go to make up digitalis, and I don't think we know practically anything about them now, you can throw into the wastebasket all the literature about new digitalis preparations and stick to these three or four forms. If you select the proper kind of a patient on the basis of type of irregularity, and give your digitalis in sufficient dosage you will get such results that you will feel pretty confident that digitalis is a good effective drug, and one very well worth having at your beck when you have a patient to treat with cardiac decompensation.

DR. WHITE: I must take exception to one remark of Dr. Pratt's. I have records at present of eighty-three cases of pulsus alternans. In 1913 Mackenzie had records of over a hundred. I want to emphasize the importance of the finding of pulsus alternans as evidence of myocardial weakness. It shows damage, or at any rate exhaustion, of the myocardium of twice the importance of that shown by absolute irregularity of the pulse. That is, *pulsus alternans* is twice as significant an index of cardiac exhaustion as is the absolutely arrhythmic pulse of fibrillation of the auricles.

Reports of Societies.

TRANSACTIONS OF THE THIRTIETH ANNUAL MEETING OF THE ASSOCIATION OF AMERICAN PHYSICIANS.

Held at Washington, D. C., May 11, 12, and 13, 1915.

The President, Dr. S. J. MELTZER, called the meeting to order at 9.45 a.m., May 11th.

THE PRESIDENTIAL ADDRESS.

After reference to the deaths during the past year of Dr. Samuel C. Chew, of Baltimore, Dr. Morris Longstreth, of Cambridge, Mass., Dr. Geo. L. Peabody, Newport, R. I., and Dr. W. E. Fischel, of St. Louis, Mo., the address dealt with certain policies and tendencies within the Association and indicated dangers to be avoided and ends to be attained.

The remarkable work accomplished by the American Medical Association, notably through the Council on Medical Education and the Council on Pharmacy, was alluded to and a plea made for more active participation by greater numbers of men of the true scientific spirit in the organization work of the American Medical Association as well as in the scientific work of the Sections.

The American Medical Association had come to exert a most remarkable influence upon the medical profession of this country, and its Journal had grown to be one of the best medical periodicals in the world. What had the Association of American Physicians contributed to this attainment? So far as the speaker could observe, nothing more than the indirect stimulus of its mere existence.

Reference was made to the changed scope of the Association's work; whereas it formerly obtained its broader point of view by virtue of its contacts with other units of the American Congress of Physicians and Surgeons, now the Association itself had the advantage of numbering in its membership not only internists, but also pathologists, bacteriologists, physiologists, pharmacologists, hygienists, and men interested in the public aspects of preventive medicine. This proved to be not an unmixed blessing; the program too often contained titles far removed from practical medicine and more appropriate for presentation elsewhere. Papers presented before this Association should always be distinctly related to clinical medicine; no papers should be presented unless related.

But, with all its bright future, clinical medicine will not gain its best advantage except by the close cooperation of clinicians and investigators. Diseases are experiments which nature makes on men and beasts. The expressions of disease, the steps of these experiments in nature, as observed by trained interpreters, will always be the best teachers of future physicians.

Clinical medicine does not consist of diagnosis and therapy alone. Great physicians are often great investigators also; unless this were so we should not now speak of Graves' disease, of Bright's disease, of Addison's disease. It was the physician Oliver who first noticed the rise of blood pressure after the administration of adrenal substance; but it was his cooperation with physiological chemists that resulted in the identification of adrenalin. It

is thus that the cooperation of both kinds of workers will assure the future of the Association.

Some have objected that the papers tend to go over their heads; but the program usually represents the present stage of medical progress, and if the papers go over the heads of any, the fact merely demonstrates that these have ceased to progress. Thus, the objection is not a valid one, otherwise all progress ceases.

After the transaction of business, the scientific program was taken up.

1

"The Anatomical and Histological Expression of Increased Resistance towards Tuberculosis in Vaccinated Cattle." By THEOBALD SMITH, Boston, Mass.

GROUP ON CIRCULATION.

2

"Important Contributions to Clinical Medicine during the Past Thirty Years from the Study of Human Blood Pressure." By THEODORE C. JANEWAY, Baltimore, Md.

Clinical observations upon blood pressure in man had not been made at the time of the foundation of this Association.

In Flint's Practice of Medicine, published in 1886, there is a passage referring to an increase of blood pressure in cases of small granular kidney and in cases of apoplexy. This showed an appreciation of the problem from facts learned by the unaided senses. A little later, Delafield, in this Association, spoke of cases with arterial narrowing, with increased intravascular tension, but no measurements of pressure were alluded to. In 1889, Stengel read a paper on Athletics, but there was no mention made of blood pressure observations.

In 1903, Cabot presented observations on blood pressure in man, and in 1904, there was a second paper by Cabot on observations of blood pressure by the sphygmomanometer. Since then the programs have always contained some titles bearing on this subject.

What has been the real gain? There has been developed an easily available method by which any physician can gain by measurement essentially accurate information concerning both the systolic and diastolic pressures in the arteries.

A sketch of the development of the sphygmomanometer was given, together with the notable names connected with the development of present knowledge of the subject.

The development of this method of clinical study has revolutionized the diagnosis of chronic Bright's disease, in contradistinction to the statement in Flint's Practice that the diagnosis of chronic nephritis depends upon the urinary findings. It has made a clinical entity of essential hypertension, of cardiovascular disease. It has disclosed the high pressure of the eclamptic state, and the low pressure of amyloid kidney. It has revealed the curious fact that in aortic regurgitation the pressure is higher in the leg than in the arm.

The study of average human blood pressure in connection with life insurance statistics has constituted an important and distinctively American line of research; Fisher's statistics are most important and indicate the normal increase of blood pressure with age. The tendency is to agree with

Lauder Brunton and Cooke that 135 mm. to mid-life and 145 mm. thereafter mark the limits of normal maximum variations in man. We have learned, in individual cases, however, not to view hypertension with so serious a prognostic eye.

From the therapeutic standpoint, the recognition of the greater importance of cardiac conservation and adequate circulation than reduction of abnormally high pressure has been a very important contribution to our knowledge. The beneficial effect of digitalis in maintaining compensation in these states is also a valuable contribution. The study of the effects of caffeine, strychnine, and other allied heart stimulants in connection with observations of the blood pressure has resulted in disillusionment with respect to the value of these agents.

Perhaps the most important of all the contributions to clinical medicine growing out of the study of human blood pressure have been the theoretical considerations having to do with the origin and explanation of the degenerative cardiovascular diseases, and these considerations must continue to be the basis of further study.

?

"The Form of the Arterial Pulse in Man." By ALBION W. HEWLETT, Ann Arbor, Mich.

4

"Observations on Dyspnoea in Cardiac Disease." By FRANCIS W. PEABODY, Boston, Mass.

The observations were made to ascertain the rôle played by acidosis in the production of the dyspnoea of cardiac disease. The conclusions reached were:

a. Acidosis plays an insignificant part in the dyspnoea of simple cardiac disease.

b. Acidosis is a more important factor in the dyspnoea of cardio-renal disease.

The second conclusion might be expected from the facts that acidosis is often present in cardio-renal disease and that dyspnoea is often present in the absence of cyanosis. To these facts may be opposed the objections that the acidosis is usually slight and that the dyspnoea is clinically different from the dyspnoea of diabetes; in cardio-renal disease the dyspnoea can be compared with exercise dyspnoea.

In making the observations a respirator was used and, by rebreathing, the CO_2 content of the respired air was increased. The respiratory products were measured and the stimulating effect of CO_2 was noted. Respiration in most persons is increased so that pulmonary ventilation is doubled when the CO_2 reaches $4\frac{1}{2}\%$ or 5%. In mild cardiac valvular disease, subjects behave in precisely the same way; in cardio-renal subjects, however, pulmonary ventilation is doubled when the CO_2 reaches $2\frac{1}{2}\%$ or 3%. This difference in behavior is explainable on the basis that the reaction of the blood is more easily disturbed in cardio-renal disease on account of the high acidity induced by the acidosis. The experiments were further carried on to note the influence of alkalis in controlling the dyspnoea.

5

"Stokes-Adams Syndrome with a Remarkable Delay in the A-V Conduction Time." By W. S. THAYER, Baltimore, Md.

The woman upon whom the observations were made was 50 or 55 years of age, the mother of several children. She had suffered with attacks of dyspnoea for several years. After a series of attacks characterized by intermittent pulse, she became unconscious and the pulse became very slow. When seen by the writer she had a perfectly regular heart beat, rate 35 per minute.

Examination with polygraph indicated that she was suffering from a total bradycardia with the A-V wave 0.7 second in duration. Electrocardiograms were made which upheld the suspicions excited by the polygraphic tracings, viz.: that the heart was beating with one auricular to each ventricular contraction, and with the most remarkably prolonged p-r period of 0.68 second. After exercise, the pulse rate fell from 35 to 28 per minute and by polygraphic tracings the A-V wave was now found to be 0.8 second, and later the A-V wave reached the unprecedented duration of nearly 0.9 second.

It was desired to ascertain the effect of atropine but the patient was hypersensitive to the drug and its use had to be abandoned. There have been a number of similar seizures since but the patient has utterly refused to allow further study.

This case at first glance would seem to be one of ordinary heart block with dissociation; but on study it was found to be one of total bradycardia. So far as known, there is on record no other case with such a long pause between the auricular and ventricular contractions. Two polygraphic tracings taken 6 weeks apart with identical curves could hardly be a coincidence.

6

"The Present Status of the Electrocardiographic Method in Clinical Medicine." By ALFRED E. COHN, New York.

7-10

GROUP OF PAPERS ON THE DUODENUM.

11

"Neurology Today and Thirty Years Ago." By CHARLES L. DANA, New York, N. Y.

12

"A Review of the Advance in Our Knowledge and Treatment of Cancer in the Last Thirty Years." By FRANCIS C. WOOD, New York, N. Y.

Papers dealing with the origin and cause of cancer have been notable by their absence from the programs of this Association for a long time. It is interesting to note that Delafield made an important contribution to the knowledge of cancer many years ago which remained unpublished until discovered by the writer in Prudden's laboratory. It described clearly and minutely the structure of a new variety of neoplasm which afterwards was recognized by the Germans and by them named choriocarcinoma.

Little has been accomplished since the early days of cancer investigation; many efforts have been made, but few discoveries can be recorded. The work of Virchow, Waldeyer, Thiersch was all published before 1885 and this work fairly settled the classification of malignant tumors. Since that time we have learned much more about the details of cancer, but there has been no advance in the clinical

knowledge of cancer, hence the need of study by the experimental method.

Perhaps the first step of advance to be recorded was from Sweden, where Jensen succeeded in the artificial cultivation of neoplastic tissues. He brought out many important points, but at once fell into the error of trying to find a means of cure by the production of an antiserum; he was not aware of the possibility of spontaneous cure of mouse tumors and attributed the recovery of some of his mice to the antiserum. This mistake was carried on by subsequent investigators and has been the cause of much lost time and labor. The next step was the observation by Gaylord of spontaneous recovery of mouse tumors; this observation was accepted by Jensen who admitted that the claims for his antiserum were probably based on similar recoveries. Gaylord observed further the subsequent immunity of such recovered mice to tumor inoculation. The paper made a plea for the general adoption of the valuable method of charting developed by Gaylord and his associates.

In 1905-1906 Ehrlich announced that mice have certain tumors which may be observed undergoing transformation into sarcoma. This transitional period covers about 50 days in mice, a period biologically equivalent to about ten years in man.

In 1908 Bashford noted the production of immunity against tumor formation by injections of tissue extracts.

In 1910 Russell showed that tumor production depends upon vascularization of tissues.

In 1915 Rous demonstrated that chicken carcinoma is transmissible by inoculation not only of the tumor tissue but of filtrates from such tissue. Rat and mouse tumors can not be thus reproduced.

Lambert and Haines have found that tumor cells of the mouse will grow in mouse blood and equally well in the blood of immune mice; thus showing that cancer immunity in the mouse is not a serum reaction.

Murphy, at the Rockefeller Institute, has destroyed the bone marrow of experimental animals by x-ray exposures and thereafter has been able to reproduce foreign tumors in such animals, thus suspending the rule that tumors will not grow in a foreign host. It may be inferred, therefore, that at least part of the natural protective mechanism against tumor formation is an attribute of the bone marrow.

Febiger has shown that tumor formation in the stomach of animals may be caused by feeding certain parasites. The writer's own work, however, has demonstrated that the same appearances may be provoked by the ingestion of various irritating substances.

Tissard has pointed out that squeezing or massaging mouse tumors will provoke the formation of numerous metastases, an observation with obvious significance.

This is the meagre fruitage of an immense amount of work; much more needs to be done and it must be done with the realization that the mouse is the test tube for the study of cancer and that all results must be rigidly checked up with all the known facts from whatever source derived.

The therapy of cancer has made no progress. Surgery is still the best hope we have. Radium and x-ray therapy are more and more disappointing. The x-ray cures are found to be after all merely remissions, the x-ray having done no more than to

provoke a temporary suspension of growth or to impose a very slow rate of growth.

13

"A Case Illustrating Some of the Limitations of Physical Examinations of the Thorax and also those of an X-Ray Examination." By FRANCIS H. WILLIAMS, Boston, Mass.

The case was presented to point out the fact that after the diagnosis of thoracic aneurysm has been excluded by physical examination, the x-ray plate may occasion a change of ideas; also, that after the diagnosis of thoracic aneurysm has been made from the x-ray plate, physical examination may alter one's opinion. In pulmonary tuberculosis, these same propositions may also be advanced.

Two radiographs were exhibited, both made from the same patient, one having been taken in 1899 and the other in 1915. While the x-ray diagnosis does not alone suffice for final conclusions, here is an instance in which a mass is disclosed which gives rise to no physical signs whatever. The diagnosis is still unmade.

GROUP ON BLOOD AND BLOOD DISEASES.

14

"A Method of Determining Total Plasma and Blood Volume." By L. G. ROWNTREE, N. KEITH, and J. T. GERAGHTY, Baltimore, Md.

and

"A Simple Method of Determining Variations in the H ion Concentration in the Blood." By L. G. ROWNTREE, MCKIM, MARRIOTT and R. L. LEVY, Baltimore, Md.

Growing out of former studies on renal functional tests, two new methods of clinical investigation have been developed.

1. The determination of total plasma and blood volume.

The method consists of injecting into a vein a given quantity of a non-toxic, non-dialysable red dye; in 3 and 6 minutes, specimens of blood are taken and the degree of dilution of the dye determined. For this determination a standard is necessary and such a standard solution is prepared by securing some blood before the dye is injected, and diluting an amount of dye equal to the dose to 4% of the body weight, using for the diluent 1 part serum and 3 parts salt solution. When the blood is taken after the injection of the dye, the serum is separated, diluted and compared with the standard solution: from this point the calculation is easy.

Curves have been constructed to show the loss of the dye from the human circulation and it has been found to be only 1% to 2%. It leaves the blood of dogs very late. The dye cannot be found in the tissues and it is not believed that it goes into the blood cells, either red or white.

In duplicate determinations, figures have been obtained with results coinciding within 100 cc. The average figures in normal individuals indicate that the blood volume should be 85 cc. per kilo or about 1/12 the body weight.

In essential hypertension and in diabetes the blood volume has been found to be normal. In pregnancy there is a large increase in the blood mass which does not disappear until 7 to 10 days

after delivery. This would seem to be a physiologic preparation for hemorrhage.

2. Determination of the H ion concentration in the blood.

The method consists of adding an indicator (phenolsulphonphthalein) to the dialysate of blood serum and comparing with a solution of known H ion concentration. The method of preparing the dialysate is described in the paper.

The normal figures for H ion concentration are 7.6 to 7.8. Many cases have been studied, among them 20 cases of acidosis, all of which have shown a concentration toward the acid side, as low as 7.0.

In experimental acidosis, the readings went as low as 6.7, at which point the animals died. In alkalosis, the readings may go up to 8.0 or 8.1 when the animal dies.

By this method the buffer values of the blood may be determined and in acidosis the buffer values are very low. It is an easy method to study both acidosis and alkalosis from the blood side.

15

"A case of Severe Anemia with Leg Ulcer." By JEROME E. COOK and JEROME MEYER, St. Louis.

16

"An Unusual Condition of the Blood in Primary Pernicious Anemia." By N. E. BRILL, New York.

17

"Metabolism Studies Before and After Splenectomy in Congenital Hemolytic Jaundice." By SAMUEL GOLDSCHMIDT, O. H. PERRY PEPPER, and R. M. PEARCE, Philadelphia, Pa.

The patient had a severe anaemia from birth with the later usual history. Metabolism studies were made both before and after splenectomy. The blood picture after operation showed marked improvement.

In general the studies indicated a tendency to lose N before splenectomy and to retain N afterward; the operation seemed to restore the capacity for nitrogen utilization. With respect to uric acid, there was a high elimination before splenectomy with a drop of 47% in uric acid output after the operation.

The utilization of iron has been said to be low before and high after splenectomy in such cases; the present studies indicated that the iron elimination before splenectomy was 50% above the intake of this element and that after the operation the iron elimination was greatly reduced. Moreover, after splenectomy there was a reduction of 90% in the urobilin elimination in the feces.

What do these figures mean? They seem to support the improved blood findings after splenectomy as evidence of the real benefit of the operation. Banti had two cases in which the difficulty in nitrogen utilization was noted and in the case here presented the same observation was made. In these blood diseases there seems to be engaged some toxic agent which interferes with the ability to build up proteins. Removal of the spleen seems to remove the toxic agent or the sources of it and in addition the hemolytic agent is removed as well.

18

"On Plasmaphoresis." By J. J. ABEL, B. B. TURNER, E. K. MARSHALL, JR., and P. D. LAMSON, Baltimore, Md.

Among the many points of view from which one may study the minute structure of the blood, the relation of cells to plasma led to experiments which consist of the removal of the plasma of withdrawn blood and the return of the cells to the circulation, a process to which has been given the name plasmaphoresis. The method is as follows: an animal is bled very freely, almost to fatal exsanguination, the blood caught in a solution of hirudin to prevent coagulation, diluted to double its volume with Locke's solution, centrifuged and the supernatant plasma discarded. The cells are now diluted to the original bulk of blood with Locke's solution and restored to the circulation of the animal. In this manner one can replace a very large proportion of the blood plasma by a solution such as Locke's with no apparent injury to the animal; and this may be done repeatedly from time to time still without injury to the animal.

Tables are given showing the changes in blood count; changes in the protein of the blood, etc. Blood pressure estimations were made and it was found that the low pressure of the exsanguinated state was well restored upon the return of the fluid to the vessels.

In the work it has been found that leech extract is not toxic, at least to the extent in which we use it. But since the war, the supply of leeches has been interrupted and a manufactured hirudin has been tried; this product is very toxic, quantities as small as 10 mg. being sufficient to kill animals with symptoms of great shock.

19

"The Preservation in Vitro of Living Erythrocytes." By PEYTON ROUS and J. R. TURNER, New York, N. Y.

There are several practical purposes involved in attempts to preserve intact mammalian red blood cells: for culture materials in the cultivation of plasmodia; for readily available indirect transfusion material etc.

It is interesting to find why erythrocytes last such a short time outside the body in view of their relatively long life in the body. In the work herein reported, washed cells were first used, but were found to disintegrate very early. It was determined that the plasma exerts a protective influence on the cells; for while washing in the centrifuge causes an injury to cells with the production of hemolysis, the addition of citrated plasma prevents this injury. It was found also that gelatin in the proportion of 1% in Ringer's or salt solution will protect the cells for a long time. Cells were tested by shaking to compare their fragility when thus treated with their fragility to hypotonic salt solution: there was no relation between the degrees of fragility, though bloods differ in their behavior in this regard. Human blood cells can be washed without injury.

Cells are protected but not preserved by gelatin; the addition of glucose or saccharose, however, to gelatin Ringer's solution will preserve the cells for a long time.

Cells that have kept several weeks take up and surrender oxygen normally; do not clump or show morphologic change; behave normally in the Wassermann reaction: are these cells really alive? Rabbits were exsanguinated and preserved blood used to supplant that withdrawn; the animals were fully restored and behaved normally after the operation. Many tests corroborated this experience. Rabbit

blood can be kept alive at least two weeks. Human blood can be kept for several weeks in dextrose-gelatin solution.

20

"Clinical Studies in Blood Transfusion." By E. LIBMAN and R. OTTENBERG, New York, N. Y.

The studies have been made in various forms of disease.

In the simple hemorrhage, the results of transfusion were uniformly good, especially in hemorrhage of gastric and duodenal ulcer. Transfusions made during the progress of the hemorrhage acted equally well as when made after the accident, and seemed to encourage spontaneous arrest of the effusion.

In six cases of dysentery, transfusion was followed by marked improvement.

In seven cases of typhoid hemorrhage, nine transfusions were done with two recoveries.

Transfusion is useful in operative work, both before and after operation; but it is of no help in surgical shock.

In purpura hemorrhagica, transfusion was done twelve times in nine cases; six cases recovered, the two deaths being in cases occurring shortly after pregnancy. In this disease, transfusion appears to have a direct curative value.

For hemophiliacs a donor should be picked in advance for possible needs. For prophylactic purposes a small transfusion every few months may be useful. Transfusion is much more helpful than the injection of serum.

For the treatment of postoperative hemorrhage in obstructive jaundice, transfusion was not of material benefit. The suggestion was made that in this condition there should be a preliminary bleeding with a large transfusion from several donors.

In pernicious anaemia and leukaemia the results were not uniformly good. In twenty-five cases of pernicious anaemia, fourteen showed for a time progressive improvement; eight of these are alive at the present time, but they all present evidences of blood trouble. In eleven cases transfusion was of no avail; two cases were also splenectomized without improvement.

The details of one case were given: in this case there were four transfusions, followed later by splenectomy; a remission then took place.

The conclusion was reached from all the experience that transfusion does more than anything else to abate the blood symptoms. It is important to try several donors when no improvement follows one or more transfusions from a single donor.

The effect of transfusion on the symptoms of pernicious anaemia were summarized thus: the appetite improves, the mental symptoms grow better, the glossitis clears up, and the blood picture improves; but the spinal cord symptoms do not improve. There is fever in 50% of the cases; some become afebrile after transfusion. The fever may be due to toxic causes or to the anaemia.

In this disease splenectomy is advisable; if no remission occurs after the operation, then transfusion should be done; or if remission does not follow transfusion, then splenectomy should be resorted to. We may thus determine the relative values of the two methods of treatment.

In leukaemia, there was some improvement following transfusion in a number of cases; but it was not lasting.

In acute infections, transfusion has no very large field of application. Patients may be helped along by it at times, but the best results are to be had in long continued subacute infections. In endocarditis with retention of infection transfusion does good only to the extent of prolonging life for a time.

The conclusion was reached that the Unger method of direct transfusion and the Weil citrate indirect method are the best and will supersede all others.

21

"The Progress Achieved During the Past Thirty Years in the Prevention and Treatment of Diphtheria." By W. H. PARK, New York, N. Y.

In the thirty years just past we have witnessed the growth and decay of the hope that by isolation and terminal disinfection the incidence of diphtheria might be reduced. There has been no such result except in the limitation of the spread of the disease in families and other small groups. The total mortality is just as high as ever, restricting comparisons, of course, to the antitoxin era.

Much work in other directions has been done meanwhile which brings us to another era.

Passive immunity we know will protect for a few weeks; 1000 units of antitoxin will confer immunity for about two weeks. We know too that this immunity may be repeated, but that its duration is curtailed after secondary injections. The short duration of passive immunity led to efforts to increase it. Three years ago Behring used a toxin-antitoxin mixture for this purpose. For 18 years producing laboratories have known that such mixtures were useful in speeding and increasing the antitoxin yield of horses. Theobald Smith suggested the use of this method in children, but Behring was the first to apply it. Other workers have, however, found limitations to the method in the fact that individuals who have no natural immunity are with great difficulty made immune, while indeed 25% of the natural non-immunes cannot be made immune at all. For practical purposes, passive immunity remains for the present the most used prophylactic measure.

Efforts have been made to see if bacterial vaccines would increase immunity, but with little success. Tests by fixation and by agglutination showed few antibodies. Present efforts have to do with attempts by the combination of toxin-antitoxin and vaccine therapy to increase both antitoxic immunity and antibody immunity.

In antitoxin therapy, we began with weak units and moderate doses; as the units have grown stronger, physicians seem to have correspondingly increased the dosage. Recently there has been much variability and uncertainty as to dosage and it is the fashion in some localities to give exceedingly large doses. It would seem that physicians have a very hazy idea why they employ a given dose of antitoxin. It is not well known that antitoxin is slowly absorbed and that it persists in the body a very long time. It has been shown that instead of any necessity of giving large doses of antitoxin to combat increasing doses of toxins as a matter of fact there are seldom present at one time more than 100 units of toxin even in the most severe cases. In fact it may be said that 1000 units of antitoxin given intravenously has an equal effect to 20,000 units given under the skin. The inference

from this statement is patent, and occasionally the intravenous method of administration should be used; but so far as the life of the diphtheria patient is concerned, only in a few cases can it be shown that the method of administration of antitoxin is of much moment. The Schick reaction aids in the appreciation of the effect of antitoxin. A single dose of antitoxin should be sufficient; a second dose is a reflection on the first.

With regard to prophylaxis it should be remembered that Schick has found that one half of the people will be found protected against diphtheria by natural immunity.

22

"Present Status of Specific Treatment of Epidemic Meningitis." By SIMON FLEXNER, New York, N. Y.

23

"The Treatment of Tetanus by Antitoxin Given Intraspinally." By MATTHIAS NIOLL, JR., New York, N. Y.

(Journal A. M. A., June 12, 1915.)

As successful as antitoxin has been in the prophylaxis of tetanus, it has been disappointing in treatment. One reason for this is that the diagnosis is usually made too late.

The prevalent advice heretofore has been to give a large intravenous dose of antitoxin, with later subcutaneous injections. This method has been very disappointing in practice, as has been said.

Experiments were made to ascertain the value of intrathecal administration of antitoxin. Guinea pigs were given twice the minimum lethal dose of tetanus toxin; they died in three days. Pigs treated thus were given antitoxin by injection into the heart cavity; they died in 5 to 8 days. Tetanic pigs treated by injecting antitoxin into the sciatic nerves did no better. But pigs treated by injecting 1/20 the dose of antitoxin used in the other animals into the spinal canal recovered. Several pigs were allowed to grow so tetanic that they were twisted into grotesque shapes; out of six treated by intraspinal injections of antitoxin, three recovered.

Since these experiments there have been twenty human cases in and around New York City. All were treated with intrathecal injections of antitoxin and 16 out of the 20 recovered. The method of treatment recommended is to give 3000 to 5000 units into the spinal canal, diluting the serum 10 to 20 cc to make it thin and easily diffusible; posture is not required to assist diffusion. In addition, 10,000 units should be given intravenously. The intraspinal injection should be repeated in 24 hours and, if necessary, the intravenous injection should be repeated also. By this method the mortality of tetanus has been reduced to 20%.

24

"The Treatment of Acute Lobar Pneumonia by Specific Methods." By RUFUS I. COLE, New York, N. Y.

A specific therapy for acute lobar pneumonia has been an object of eager search throughout the life of this Association. Has any progress been made toward the discovery of a specific remedy?

The paper relates the steps in this direction from the work of Fränkel, who was able to develop a certain resistance in animals, to that of Morgenroth who observed the destructive effect of ethyl hydrocuprine upon pneumococci *in vivo*.

One of the baffling difficulties is the fact that it is necessary to know the exact causative organism active in a given case; moreover, if it is determined that the pneumococcus is the predominant organism, it is still necessary to determine the type of pneumococcus; for four large groups of this organism may be distinguished. The disease then cannot be regarded as a pathological entity but must be approached by a specific etiological study.

Much of the work upon the problem of the specific treatment of lobar pneumonia has been directed toward the development of a vaccine therapy, following the lead of Sir Almroth Wright. But study of the problem indicates that there are two immune processes to be reckoned with: A body or somatic factor and a serum or passive factor. Active immunization is best accomplished by the disease itself. Workers with sensitized vaccines have found that their apparently beneficial results have not been due to immunity invoked by the vaccine but to immune substances present in the vaccine. The literature shows no good results from vaccine therapy, and this may be the more readily understood since we have come to know that the use of pneumococci of type I could have no helpful influence in a pneumonia due to pneumococci of type II.

Attention has thus been concentrated on devising means for producing passive immunity. The paper gives facts based on animal experiments to show that there is good reason to expect good results in this way. Immune bodies have been found in animal sera long ago; but failures to accomplish much with these sera have been due to the lack of knowledge hitherto of the different types of organisms with which we have to deal; insufficient doses of organisms have been used in inoculations for the production of immune sera; and too little serum has been used in the treatment of pneumonia. It is now easy to recognize the different types of organisms and it has been done practically in a number of cases with the development of truly specific sera. Types I, II, III, and IV are recognized. It has been found impossible to produce an immune serum for type III, and the use of such a serum in type IV is impracticable because it is so variable. Thus serum therapy is reduced in application to cases due to pneumococci of the types I and II. Serum therapy in 46 cases of pneumonia due to type I organisms had a mortality of 8%; of the fatal cases 1 died of pulmonary embolism and 2 had treatment only a few hours before death. These cases, of course, are insufficient to prove anything: conclusions must be based on experimental evidence and not on statistical clinical evidence.

With regard to chemotherapy, it is known that sodo-oleates are antagonistic to the development of pneumococci, but it is not possible to use these substances therapeutically. Morgenroth has shown that ethyl hydrocuprine is specific against pneumococci; but in mice it is necessary to give a large dose—approaching the toxic point—and to give it very early. To give in man a dose proportionate to that necessary in successful experiments on mice, it would be required to exhibit about 70 gm., where as the administration of 1.5 gm. has been known to cause amblyopia.

(To be continued.)

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

EUGENICS AND PRESENT-DAY WARFARE.

THE application of the Darwinian theory of the survival of the fittest in the case of the individual to a race, as has been done by Bernhardi and others, that in war the stronger races survive and the weaker perish, the whole human race profiting thereby, may have been a tenable hypothesis in the time of the Germans and the Goths. In those days of primitive warfare the weakest nations were destroyed and the strongest survived. When gunpowder was invented and man could kill his adversary from a distance, and later, with the advent of smokeless powder, without disclosing the location of the destructive agent, all this was changed.

The Chinese minister at Brussels is reported to have said to his colleagues just before the present war, "A cannon has no eyes." A gunner serving his cannon now gets the range from an aeroplane and drops a shell in a group of the

enemy five miles away. The chances are even that in this group the man of genius, the well groomed athlete of twenty, the mentally and physically fit will be killed as often as the stupid dolt who has barely passed the requirements for admission to the army. The poison gases injure all alike. Life in the trenches is responsible for serious mental as well as bodily harm in this long distance impersonal warfare of machinery and chemistry.

The bravest are placed in the front to lead the desperate charges and the rapid fire machine guns mow them down, the man who turns the handle of the gun having, perhaps, the minimum of fitness. The youngest men sustain the heaviest loss—those who have not yet become fathers,—while the older men, those over forty-five years of age, who have already raised as many children as they are likely to contribute to the state, are among the reserves, manning fortresses and coast defences and therefore exposed to no special danger. Thus the race must be propagated by the old men or by the physically or mentally unfit. Apparently at the present time war is national suicide.

It has been estimated that, if the European War lasts through next winter, France will have lost at least a million men either killed or so badly mutilated that they may be counted out of the history of the race, this million being made up of the very flower of the nation on the male side. In Germany and in Russia the same process is going on, on an even larger scale. England is raising an immense volunteer army and probably has at present about two and a half million men under arms. Although they are volunteers, the system of conscription in vogue in other countries not having been adopted in that country as yet, the army is made up of the best physical and moral force of the nation. It has been computed that of the 120,000 who fought at Ypres in October, comparatively few are left today to serve in the ranks. England has lost most heavily in the men of the upper and upper middle classes, who responded first to the call for troops. Many of the great families of the land have lost all of their male heirs and the English gentleman bids fair to become extinct.

Other factors to be kept in mind when considering the effects of war on the future of a people are the large numbers of illegitimate children that have been born in the immediate

vicinity of the military training camps; the inability of the soldier, because of his calling, to support a family, thus diminishing the birth-rate; and the known prevalence of syphilis and venereal diseases in armies.

W. L. B.

PSYCHOLOGICAL SELECTION OF WORKMEN.

MUCH of the reproach which has been cast upon psychologists because of the apparent aloofness of their science from the affairs of every-day life is in a fair way to be obviated. When we find the ordinary psychologic laboratory tests applied daily in a large factory with a resultant increased efficiency of its employees, we are justified in optimism in regard to the practical future of psychology.

The average efficiency expert concerns himself with how the workman does his work, such problems as waste motion, and unnecessary duplication of effort; but the manager of a certain large manufacturing corporation believes in studying the personal equation, the capabilities and adaptabilities of the workman himself. He applies the routine laboratory tests for quickness of perception, degree of attention, and capacity for retention, to the applicant for employment, and determines first whether or not he shall be employed and, second, what work will suit him best. The results obtained have been amazing. The daily capacity of the men loading pig-iron on cars has increased from twelve and one-half to forty-seven and one-half tons per man, and at the same time their pay was increased 60%, and they were allowed time for rest.

Even more striking than these results are those obtained in the case of the girl employees who examine steel ball bearings and pick out the defective ones. To secure the girls best fitted for this work the manager made use of a simple psychological test. He employed those girls who were quickest to recognize a letter shown for an instant. Having selected the most suitable ones, he shortened their working day by two hours, gave them a Saturday half-holiday, four recesses during the day for recreation and even allowed those who needed it to take two days off at the time of their monthly period. As a result he has 35 girls doing the work 120 did before, they get twice as much wages and their

work is more accurate, thereby saving the management much of the cost of inspection. It is hardly necessary to add that the employees take kindly to this system and are on the best of terms with their employers.

VACCINATION AND TETANUS.

THERE has been some tendency recently, in certain quarters at least, to suspect vaccination virus of being at times a source of tetanus infection, owing to the wide publicity which has been given to several cases of tetanus following vaccination. The anti-vaccinationists have, of course, made much capital of these occurrences, but they will find little comfort in some observations published by Dr. John F. Anderson, Director of the Hygienic Laboratory, United States Public Health Service, in the *Public Health Reports* for July 16. He has conducted researches for the past eleven years to determine what relation, if any, existed between vaccination and the cases of tetanus which now and then followed it.

Not to detail all his experiments, he failed to produce tetanus in monkeys and guinea-pigs, animals subject both to tetanus and vaccinia, even by vaccinating them with virus laden with tetanus germs. He examined enough virus to vaccinate two million individuals and failed to find any tetanus germs, although the methods used were demonstrated to have been always effective where the bacillus was known to be present. Moreover, the virus examined was later put on the market and cases of tetanus were reported following the use of some of it.

Dr. Anderson calculates that during this eleven-year period about 31,942,000 vaccinations were done and only forty-one cases of tetanus were reported, which in itself would be almost enough to brand them as coincidences. In the army and navy there were about 585,000 vaccinations performed from 1904 to 1913 with not a case of tetanus.

Dr. Anderson concludes, from his approaches to the subject from the above varying angles, that tetanus never occurs in vaccination proper and as a result of bacilli in the virus, but only by contamination of the vaccination wound, such as may occur in any wound not cared for properly.

TRICHINIASIS.

THE Health Department of the city of New York has called attention to an alleged increase in the number of cases of trichiniasis in that city, and while the disease is one that is not called for notification by the Sanitary Code, the department would welcome voluntary reports from physicians.

This disease may exist to greater extent than has been recognized, as the common use of uncooked meats increases with the growth of the population. The statement has been made that no examination of a carcass can make sure that the animal was not infected. Doubtless, some human cases are never recognized. Although the symptoms of muscle pain, followed by edema of the face, are well known, mild cases may easily be classed as rheumatism or typhoid before the microscopic search for eosinophilia and cysts is made.

Physicians know that the severity of the disease depends on the number of unskilled embryos swallowed. Those liberated from the meat by the digestive processes reach the adult stage in about three days, and within ten days have produced hundreds of young, some of which pass out with the feces, others penetrate the intestinal walls and pass into the muscles. The adults may survive as long as two months in the intestine and turn out many broods. These can be counted as the sole source of supply, as the young never develops to adult life in the intestine before passing through the muscle cyst stage.

A considerable quantity of raw pork and beef is eaten in this country, in mixtures called "sa-lame," "cervelot," "roulade," and raw smoked ham products. It would be well for consumers of these delicacies to know the danger and to learn "that two per cent. of all hogs are trichinos." The bulletin also quotes Dr. Osler as stating that "post-mortem statistics show that from one-half to two per cent. of all bodies contain trichinae."

MEDICAL NOTES.

NEW YORK DEATH RATE LOW.—During the week ending August 7, 1915, there were 1451 deaths as compared with 1314 for the corresponding week of last year. The respective rates were 13.04 and 12.28. Making allowance for increase in population of 1915 over 1914,

there was still an increase of 85 deaths. While there were no deaths directly from insolation, the deaths from diarrheal diseases were more numerous during the past week than during the corresponding week of last year. Heart disease, pulmonary tuberculosis and violence showed an increase. Considering, however, the fact that the temperature during the past week was the most unbearable that the city has experienced in a great many years, it is a source of gratification that the number of deaths was kept within the figures above given.

The rate for the first 32 weeks of 1915 was 13.78, as compared with 14.57 for the corresponding period of 1914.

METHODS OF FIRST AID TREATMENT.—During the past year a special committee of U. S. army surgeons in Washington have been engaged in an investigation of the problems of first-aid measures and material, improved methods of transportation of wounded and more efficient fixation of injured extremities, as applied to military surgery.

The necessity for this investigation was furnished by the deplorable lack of uniformity in the methods used, since these have been found to vary not only in the armies of the different nations now at war, but also in the different departments of our army and navy at home.

Careful testing of first-aid packages, dressings, drugs, splints and other material employed in the administration of first aid, as well as the study of the best methods of employing them, is expected to lead to the standardization of first-aid material and methods. These will be incorporated in a First-Aid Manual to take the place of everything that has been arbitrary and confusing in the past.

It has been suggested that the results of this investigation should be just as useful and far-reaching when applied to the demands of accident surgery in industrial pursuits, as to military surgery, since selection of the best and its standardization must needs lead to economy and efficiency.

A number of surgeons engaged in the practice of accident surgery in the service of large industrial enterprises, whose opinion on this aspect of the problem has been sought, were so impressed with the mutual benefits to be derived from supplementing the investigations of the army and public health service officers, with the wealth of practical experience of the corporation surgeon, that a movement was set on foot for a joint conference of the different services and with the object of crystallizing ideas and more clearly defining the problems involved.

This meeting was held on Monday and Tuesday of this week, August 23 and 24, at the New Willard Hotel in Washington, D. C.

RELEASE OF QUARANTINE IN MARYLAND.—Report from Washington, D. C., states that on

Aug. 16 the federal quarantine against foot and mouth disease was raised throughout Maryland.

LONDON DEATH RATES IN JUNE.—Statistics recently published show that the total death rate of London in June, 1915, was only 12.2 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 18.3 in Shoreditch, a crowded eastern slum, and the lowest was 8.3 in Wandsworth, a populous suburb on the south.

A WELSH MEDICAL SCHOOL.—It is announced that a medical school, open to women as well as men, is to be established in conjunction with the University of Wales, probably at Cardiff. Hitherto there has been no Welsh medical school, and students from that country have gone chiefly to Edinburgh, Glasgow, Aberdeen, St. Andrews, or Manchester.

AMENDMENT TO THE WISCONSIN EUGENIC LAW.—It is announced that, owing to the notable decline in marriages in Wisconsin, since the enforcement of the so-called eugenic law, noted in various issues of the JOURNAL, the law has been amended to make its requirements less rigid, and permitting physicians greater liberty in granting certificates.

EDUCATIONAL WORK FOR THE PREVENTION OF BLINDNESS.—The National Committee for the Prevention of Blindness has recently issued a circular, describing what women's clubs and nursing organizations can do to prevent blindness. It was written in response to frequent requests from nurses and club women for guidance in initiating or continuing prevention of blindness work. It describes the method of treatment of ophthalmia neonatorum, points out the dangers of midwives, discusses the adequate care of eyesight of school-children, industrial accidents and wood alcohol, and follows each subject with suggestions for the proper regulation and supervision of these dangers on the part of the community.

MILITARY CAMP FOR MEDICAL OFFICERS.—There is held during August in Tobyhanna, Penn., a military camp for the training of United States medical officers of the organized militia and doctors of the United States army medical reserve corps, the latter of which number about 1500 physicians and surgeons. The course lasts seven days for each class and there are six classes.

"The chief duty of the medical department in campaign is to relieve the fighting forces from the burden of caring for the sick and wounded at the front. This means that transportation of immense numbers of disabled men must be accomplished by the medical department.

"Viewed in this light, it is readily seen that medical department administration in the field

requires a large measure of military talent in troop leading, and that unless the division surgeon can have the services of a real military force his efforts will result in chaos.

"It has been found in all armies that the wounded have a better chance of recovery if their treatment is postponed until their arrival at the base, where proper facilities can be provided for their care. The military surgeon at the front is most successful when he refrains from practising medicine and surgery and devotes his entire energy to rendering first aid and arranging for prompt evacuation to the rear of all of his charge.

"A surgeon possesses surgical judgment and is able to separate those who can from those who cannot be transported, and he is able to give satisfactory first aid. In all active particulars his duty on the firing line could be performed by a line officer. This explains the military axiom that a line officer would make a better military surgeon at the front than any civilian surgeon who has not received a military training. The definition of a military surgeon is a 'soldier who has specialized in surgery, sanitation and medicine.'

"The last few weeks of the camp at Tobyhanna will be given over to the instruction of militiamen who have specialized as field hospital and ambulance company commanders, but during the first weeks of the camp only general instruction has been given."

EUROPEAN WAR NOTES.

SURGICAL DRESSINGS FOR THE WAR.—A recent report of the surgical dressings committee of the New England branch of the National Civic Federation states that during the past year this organization has prepared and sent to Europe over 300,000 dressings for the wounded. These have been variously distributed as follows:—

"We have sent our dressings to the Princess Joachim Murat's hospital to Mrs. George Howland for a hospital at Montreuil, to the Baron de Luze Hospital, Benevoie, to the American Women's War Relief Hospital at Paignton, to the American Clearing House for general distribution, to the French Wounded Emergency Fund, to the Belgian Hospital at La Panne, for Serbian sanitary relief, and for the St. John's Ambulance Association. This last depot, through which we have constantly sent supplies through the agency of Mrs. Clifton-Sturgis, we have found to be most business-like, reaching the hospitals in France sooner than by any other agency except that of the American Clearing House. Richard Norton was allowed to requisition our supplies from the St. John's depot and to have them forwarded direct to his ambulance corps in France. He wrote expressing the greatest delight that at a crisis when supplies were failing the French army, he was able to give them dressings which had been made here in Boston by your committee. It wa-

after this episode that we had very complimentary letters from the surgeon-general of the second French army, and from Lord Stanmore of the St. John's Association."

ITALIAN WAR RELIEF.—The president of the New England Italian War Relief Committee has issued the following appeal for funds:—

"This committee has been formed to aid in relieving the distress which the European War brings to non-combatant Italians. Our immediate purpose is to help the women and children left destitute by the call of their wage-earning husbands and fathers to the war. Some of these are families of reservists summoned to Italy, and live in this country; a much larger number are in Italy itself. The inevitable casualties on the field and in the hospitals add daily to the list of those left without support.

"In our work we are promised the assistance of the Italian ambassador at Washington, Count Vincenzo Maechi di Cellere, who gives the movement his cordial approval and consents to oversee the distribution of the funds. As our means permit, we shall extend the field of relief, always keeping in view the most pressing needs.

"We appeal in the name of humanity, which calls on everyone to succor especially the innocent victims of war. We believe also that many Americans, who acknowledge their debt to Italy for her service to civilization, and for the pleasure and inspiration which they have personally received from her, will welcome this means of expressing their gratitude.

"Messrs. Lee, Higginson and Company, 44 State Street, Boston, have kindly consented to act as treasurers of the fund, and to acknowledge through the newspapers the subscriptions received. Checks should be sent to them, payable to the order of the New England Italian War Relief Fund."

WAR RELIEF FUNDS.—On Aug. 16 the totals of the principal New England relief funds for the European War reached the following amounts:—

Belgian Fund	\$267,043.12
Italian Fund	1,579.10

BOSTON AND NEW ENGLAND.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—In a recent statement to the daily press, Mr. George R. Bedinger, director of the Boston Milk and Baby Hygiene Association, comments as follows on the work of the Association this season and during the past four years:—

"The managers and officials of this association are peculiarly gratified at the steady and rapid improvement of Boston as a safe place for babies. Four years ago this city ranked eighth among the ten largest cities in its record for the reduction of infant mortality, as measured by the baby death rate. Last year it had

risen to second place, tied with St. Louis, New York being in the lead. For the first half of this year it has a lower death rate than New York City. The number of babies cared for by the association has steadily increased, the number four years ago being 2827; in 1912, 3026; in 1913, 3421; in 1914, 4097; and for the first seven months of this year 3438. Indications certainly point to an infant death rate for 1915 below 100 per 1000 births, which, if attained, will be a new record for our city."

NEW ENGLAND CANCER DEATH RATES.—In the registration area of the United States the cancer death rate is 78.9 per 100,000 of population, but in New England the rate is considerably higher. In Connecticut it is 85.1; in Rhode Island, 93.3; in Massachusetts, 101.4; in New Hampshire, 104.4; in Maine, 107.5; and in Vermont, 111.7. Probably two factors are concerned in this phenomenon: first, the relatively high age distribution; second, the greater predominance of Yankee stock in the New England states. In Kentucky the rate is only 48 per 100,000.

THE BOARD OF HEALTH, NEWPORT, R. I., was organized on January 30, 1914, with Dr. Rufus E. Darrah president and Dr. George D. Ramsay secretary. During the year thirteen regular and eighteen special meetings have been held. The first annual report of the Board gives the following facts: The number of deaths from all causes was 333, which gives an annual death rate of .11.35. The cause of the greatest number of deaths was organic disease of the heart, with cerebral hemorrhage coming second. No deaths were reported from typhoid fever for the year. There occurred but seven cases, two of the patients being taken from vessels in the harbor. Four deaths occurred from whooping cough. One case of pellagra, resulting in death, the first ever known to occur in the city, was reported.

TYPHOID AT GRAFTON STATE HOSPITAL.—In the monthly bulletin of the Massachusetts State Department of Health for June, 1915, is published a report of a recent typhoid outbreak in the Grafton State Insane Hospital:—

"This institution consists of what was formerly called the Worcester Insane Hospital, Summer Street, Worcester, as well as four colonies situated in North Grafton.

"In Worcester at the time of the outbreak there were 638 patients and 169 employees, while at North Grafton there were 831 patients and 200 employees, making a total of 1838 for the entire institution.

"On May 8, 1 positive typhoid reaction was obtained from Worcester and 2 from Grafton, and 1 each from both places on May 15. The Worcester cases were from two different female wards, fed from a common kitchen, and no cases or suspicious cases were found in the male wards or among the employees.

"The 3 cases in North Grafton were from three different female wards, fed in three different dining rooms, served from a common kitchen. These three dining rooms and kitchen are in the Pine Service Building, where 330 patients and 40 nurses take their meals. Very little of the nurses' food is handled by the patients, as most of this is done by the cook and her assistant, while most of the patients' food is handled and served by the patients themselves. In all departments at North Grafton milk is freely served and used three times a day. No cases or suspicious cases were noted on the male ward or among the employees at North Grafton.

"No history of recent illness, malaise or indisposition of any kind was obtained from those handling the milk or other food.

"The milk supply of the institution was obtained from B. and from N. of North Grafton, as well as about 200 quarts daily produced on the two farms connected with the colony in North Grafton. All of the milk, however, was not mixed; none of N.'s milk went to North Grafton; none of the milk from Colony 1 went to Worcester; and none of B.'s milk was used in Grafton. The milk from the O. farm in North Grafton was the only portion of the supply used at both Grafton and Worcester. The milk was not bottled, but was delivered by B. in his own cans, which were handled, collected and washed by his men. The milk from N. is collected in cans furnished by the institution. These cans, as well as those used at the two farms in Grafton, are furnished by the institution and are washed with steam and warm water at Grafton, but not actually sterilized. Since the beginning of the outbreak, however, satisfactory additional precautions have been taken.

"There was no history of typhoid or any other suspicious indisposition on the B. and N. supplies.

"As soon as the first cases appeared, all suspected 'contacts' were vaccinated, and later, all employees; and when it was suggested that every one in the institution be vaccinated, arrangements were made forthwith to carry out this suggestion at the rate of about 100 cases a day. To date (June 14) all employees at Grafton and Worcester have received their third treatment, and all patients, with a very few exceptions, have received their second, so that inside of ten days every one in the entire institution will have been vaccinated."

was born in Washington, D. C., on August 14, 1874. His youth was spent at Middlebury, Vt., and he graduated from Middlebury College in 1896. Later he studied in the department of zoölogy at Harvard University, from which he received the degree of Ph.D. in 1900. For a year he taught as assistant in anatomy at the Harvard Medical School and then devoted two years to travel and study in Europe, chiefly at Freiburg, Naples and Strassburg.

Returning to the United States in 1903, Dr. Prentiss held teaching appointments in the zoölogical departments of Western Reserve University and of the University of Washington at Seattle. In 1909 he was appointed assistant professor of anatomy at the Northwestern University Medical School, and in 1913 became professor of microscopic anatomy in that institution, a position which he held until the time of his death.

Dr. Prentiss was a member of the Association of Anatomists, the Society of Naturalists and the Society of Zoologists. He was a prolific writer on topics in anatomy and zoölogy, and published many papers presenting the results of his own investigations in these fields of research. In January, 1915, was published his text-book of embryology, a work which summed up the experience of his professional and scientific career and which was reviewed in the issue of the JOURNAL for April 29, 1915 (Vol. clxxii No. 17).

In an obituary notice of Dr. Prentiss by S. Walter Ransom in the issue of *Science* for Aug. 6, is the following estimate of his character and professional ability:—

"Professor Prentiss's scientific work was characterized by a scrupulous attention to detail and by the perfection of his technical methods. He handled with great success and on difficult material the most delicate of neurologic methods—the methylene blue stain. His dexterity was shown again in remarkable dissections of embryos, drawings from which appear in his book. He brought to all his work an unusually clear mind and a keen insight into fundamental problems.

"Reticent, almost shy, by nature, and prevented by the condition of his health from often joining his colleagues at the regular Christmas meetings, Dr. Prentiss was intimately known to only a chosen few. To them he was endeared by reason of his unfailing good humor, generous motives and loyalty to high ideals and to his friends. Admired and respected by all conscientious students and loved by those who came into close contact with him, he helped greatly toward the establishment of high standards of scholarship and manhood in the student body.

Obituary.

CHARLES WILLIAM PRENTISS, Ph.D.

DR. CHARLES WILLIAM PRENTISS, who died of duodenal ulcer on June 12, 1915, at Chicago,

Miscellany.

A GRAECO-EGYPTIAN OBSTETRIC INSCRIPTION.

In a recent bulletin of the Archeological Society of Alexandria, Professor G. Arvanitakis publishes the text of a Greek inscription lately discovered in Egypt, relating to a patient, Herois, who died in childbed, and the obstetric circumstances associated with her death. The *Facet* presents the following translation of the inscription and comment upon it:—

"Who is the dead one? Herois. How and where? Having a tumor (*οὐχός*) in the stomach. And, notwithstanding that we placed weight (in the form) of Isis; the mother was lost very quickly, and then the child also. What was her age? Eighteen. So Herois was in the power of her age. Oh, the unfortunate one. May Osiris render her ashes light and grant her sweet water." The story told in this record is one which, it is to be feared, was of frequent occurrence about the commencement of our era. Herois's first accouchement had arrived, and the doctor, or midwife, acting as attendant, finding the delivery delayed, proceeded by mechanical means to accelerate matters. He took a weight made in the form of a figure of Isis, a residing deity on such occasions, and either laced it upon the mother's abdomen as, as is more probable, attached it by a cord to the already projecting part of the infant. In this case the mother would have been placed in a sitting posture, resting upon two stools, or standing erect. The erroneous practice in the case referred to produced the delivery of the child, doubtless injured, for it died shortly after the mother. The word translated tumor is *οὐχός*, which Galen uses solely with that meaning."

ANCIENT REMEDIES FOR HICCOUGH.

A RECENT article by Dr. John A. Wyeth of New York on hiccup and on the various remedies therefor led Mr. Philip Hale to extract from classic and medieval literature a number of such remedies whose efficacy was considered certain. He writes in part as follows upon this interesting subject:—

"The remedies are countless. The ancients, apparently ignored by Dr. Wyeth, recommended many. They knew that if you took the medicine composed of the three kinds of pepper and anch wine immediately afterwards, you would have the hiccup. When emptiness of the stomach is a cause, sneezing will not put an end to the spasms. Paulus Aegineta advises in this instance use with wine, or nitre in honeyed water, hartwort, carrot, cumin, ginger, calamint, or

Celtic nard. In severe cases, try the vinegar of squills. Holding the breath is of use. Aetius gave emetics, then narcotics, and finally applied a cupping instrument with great heat to the breast, belly and back. Alexander began with bleeding when the hiccup was connected with inflammation of the stomach or liver. The author of the 'Euporista' put the patient's feet in hot water, gave him tepid drinks, and applied hot fomentations to the belly. We now quote from Pliny the elder, translated by Philemon Holland: 'But, against the Hocquet or Yex there is a notable medicine made with it (colewort), together with coriander, dill, honey, pepper and vinegar. If the pitch of the stomach be anointed therewith the patient shall evidently perceive that it will dissolve the wind and puffing ventosities therein.'

"Pliny gives 15 or 16 remedies. Garden mint, with the juice of a pomegranate, is one of them. And note this use of mint: 'The juice of mint is excellent for to scour the pipes and clear the voice, being drunk a little before that a man is to strain himself either in the choir, or upon the stage, or at the bar.' This shows why consumers of mint juleps are talkative.

"And now consult Mr. Topsell's 'History of Four-Footed Beasts': 'If that any man do get and put up the shoe of a horse being struck from his hoof as he travelleth in his pace (which doth many times happen) it will be an excellent remedy for him against the sobbing in the stomach called the hicket.'

"Turning to that invaluable book of medicine, 'A Thousand Notable Things of Sundrie Sortes,' by Thomas Lupton (London, 1627), we find (Book IV, 82): 'Stop both your ears with your fingers and the hickop will go away within a while after. Proved.' Here is a quicker cure (Book VI, 4): 'It is proved, and a secret: that if you give to them that have the hickop every morning three hours before meate one roote of greene Ginger, and immediately after drinking two draughts of Malmesey, you shall see that he will become cured. Emperieci benedicti victorii.' "

BRITISH SURGEONS IN INDIA.

IN the issue of the *British Medical Journal* for May 25, 1907, appeared an article entitled "British Medicine in India," in which was given an account of some of the physicians who played an important part in the establishment of the British Empire in India. Among these was Dr. Gabriel Boughton who, in 1645, obtained for the East India Company the concession which first gave it a secure footing in India. Another was Dr. William Hamilton, who in 1715 cured the Indian Emperor at Delhi of a malignant distemper, in gratitude for which the Great Mogul received favorably the British Embassy, of which Hamilton was a member.

Dr. John Zephaniah Holwell in the 18th century was chief surgeon of the Bengal presidency and afterwards was mayor of Calcutta. When the city was sacked in 1756 the governor fled and Dr. Holwell took command of the garrison and was one of the prisoners who survived the Black Hole. In 1760 Holwell succeeded Lord Clive as governor of Bengal.

Another memorable practitioner of Calcutta was Dr. Richard Cheese, who is commemorated by a monument in that city. In the issue of the *British Medical Journal* for June 12, 1915, is quoted the following epitaph from his tombstone. Dr. Cheese went to India in 1792 and died there in 1816.

Sacred to the Memory of the late

RICHARD CHEESE, Esq^r.

Surgeon to the Hon^{ble} Bengal Company's
Establishment and Garrison Surgeon of
Fort William

Dedicated by Public Contribution
In token of the high and well merited Esteem of
the Community
For the Enlarged and Practical Philanthropy of
that Gentleman's character.

Perhaps never had the remains of a Christian in
India been followed to their tomb

With more heartfelt and Expressed Regret
Than were manifested by the Numerous Assem-
blage

Of all classes of the Society of the Place
Who attended the Funeral on the 15th Jan.,
1816.

He had long exercised his Professional Talent
With an Ability which did Honour to Him as a
Practitioner of Medicine,

And with a Munificence Worthy of the Religion
he professed.

If a change of Air, or Expensive Nutriments
were desirable
But could not be afforded from the Resources of
the Patient—

Mr. Cheese supplied the Means.
And when all Human Endeavours proved
Unavailing

His Purse was ever open to clothe and support
the destitute Mourners.

In the Society of His Equals
Such was also the cheerful benignity of his
Manners

That he was ever a Welcome Guest
Alike to the children and to the Heads of the
Family.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF
AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN
PROFESSION FOR THE WEEK ENDING AUGUST 14, 1915.

CONTRIBUTIONS.

Dr. W. L. Keller, Hot Springs, Ark. \$ 5.00
Dr. E. C. Ellett, Memphis, Tenn. 10.00

Dr. David W. Cheever, Boston, Mass.	20.00
Receipts for the week ending August 14.	\$ 35.00
Previously reported receipts.	7779.84
Total receipts.	\$714.84
Previously reported disbursements:	
1625 standard boxes of food @ \$2.20.	\$3575.00
1274 standard boxes of food @ \$2.30.	2930.20
353 standard boxes of food @ \$2.28.	804.84
Total disbursements.	\$7310.04
Balance.	\$504.80
F. F. SIMPSON, M.D., Treasurer, 7048 Jenkins Arcade Bldg., Pittsburg, Pa.	

UNITED STATES NAVY MEDICAL CORPS.

At the preliminary examination beginning July 6, 1915, held in various cities of the United States, for examination of candidates for appointment as assistant surgeons in the Medical Reserve Corps of the Navy with a view to subsequent examination and appointment in the Medical Corps of the Navy after a course at the Naval Medical School, the following candidates were found physically and professionally qualified:

1. Virgil Hope Carson, M.D. (Medical College of Virginia); Interne, New York City Hospital.
2. Elphege Alfred Gendreau, M.D. (Georgetown University Medical School); Interne, Providence Hospital, Washington, D. C.
3. Francis DeArmond Gibbs, M.D. (Georgetown University Medical School); Interne, Georgetown University Hospital and Children's Hospital, Washington, D. C.
4. John Harper, M.D. (Medico-Chirurgical College of Philadelphia, Pa.); Interne, Medico-Chirurgical College of Philadelphia.
5. Forrest Martin Harrison, M.D. (George Washington University); Interne, Government Hospital for the Insane, Washington, D. C.
6. Richard Hagan Miller, M.D. (Jefferson Medical College); Ph.B., 1907 (Brown University), A.M., 1909 (Brown University); Interne, Rhode Island Hospital, Providence, R. I.
7. John Paul Owen, M.D. (St. Louis University); Interne, Hospital and Health Board of Kansas City, Mo.
8. John Floyd Pruett, M.D. (Leland-Stanford University); A.B., 1909 (Leland-Stanford University); Interne, Lane Hospital, San Francisco, Cal.
9. William Jobiel Rogers, M.D. (Western Reserve University); A.B., 1911 (Adelbert College, Western Reserve University); Interne, St. Vincent's Charity Hospital.
10. George Patrick Shields, M.D. (University of Pennsylvania); Interne, Methodist Episcopal Hospital and St. Agnes Hospital, Philadelphia, Pa.
11. George Washington Taylor, M.D. (Tulane University); B.S., 1909, M.S., 1910 (Alabama Polytechnic Institute); Interne, Illinois Central R. R. Co. Hospital, New Orleans, La.
12. Russell John Trout, M.D. (New York University and Bellevue Hospital Medical School); Interne, Bellevue Hospital.
13. George Boyd Tyler, M.D. (Medical College of Virginia); Interne, Marine Hospital, Chicago, Ill.
14. Walter Alfred Vogelsang, M.D. (University of Tennessee); Interne Contagious Disease Hospital New York; Ernest Werde Hospital, Buffalo, N. Y., and Tuberculosis Preventorium for Children, Farmingdale, N. J.
15. Grover Cleveland Wilson, M.D. (University of Virginia).
16. Charles Henry Weber, M.D. (Marquette University); B.S. (Marquette University); Interne, National Military Home, Ind.

The Boston Medical and Surgical Journal

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Address.

SCOPE OF PUBLIC HEALTH SERVICE.*

BY WM. C. HANSON, M.D., BELMONT, MASS.

Formerly with the Massachusetts State Board of Health.

THE scope of public health service has become exceedingly broad. All the fields of the medical and related sciences form the foundation of public health work.

The purpose of public health work is to protect and promote the health of the citizens to the end that their usefulness may be increased.

The distinction between public health and private health is arbitrary and unimportant, although some diseases are better illustrations than others of the necessity for a public health service.

Lemuel Shattuck, a very intelligent layman, proposed to the Massachusetts Legislature of 1850 "An Act for the Promotion of Public and Personal Health." In one of the most remarkable public health documents ever written, now more than half a century ago, Shattuck said that "the great object of sanitary science was to teach people the causes of disease,—how to remove or avoid these causes,—how to prevent disease,—how to live without being sick,—how to increase the vital force,—how to avoid premature decay." "One of the most useful reforms," he said, "which could be introduced

into the present constitution of society would be, that the advice of the physician should be sought for and paid for while in health, to keep the patient well; and not, as now, while in sickness, to cure disease, which might in most cases have been avoided or prevented." Shattuck was many years too early for his time, but we are fast following the lines of action that he described with such remarkable foresight.

No branch of preventive medicine has excited greater interest of late years than the study of the effects of occupation on health and length of life. Massachusetts was the first state to begin the scientific study of the physical effects of child labor in America. Owen R. Lovejoy, secretary of the National Child Labor Committee, recognized this fact when in 1912 at the International Congress of Hygiene and Demography he said: "This public service has been to some extent developed in Massachusetts, and creditable work has been done by the State Board of Health. In other states but slight beginnings can be recorded." At this same Congress, the president, Dr. H. P. Walcott, for 25 years president of the Massachusetts Board of Health, said in regard to the prevention of occupational diseases: "We should now bend all our efforts to a course of determined and persistent administration in the hands of instructed and public-spirited officers acting with all the great powers conferred by existing statutes."

It may not be amiss in this connection, in view of the importance of the subject for the protection of the community, to state that at this International Congress the Massachusetts Board of Health was awarded a diploma for superior merit

* Read as the Annual Oration for the Middlesex South District, Massachusetts Medical Society, New American House, Boston, April 1, 1915.

for its exhibit on the hygiene of occupations. It was the only award made on the subject to any state or municipal exhibitors. The jury, appointed by the executive committee of the congress, consisted of nine disinterested persons occupying prominent public positions, the chairman of which was Major Russell of the United States Army Medical School.

Less than eight years ago the Massachusetts Board of Health took on the scope of an investigation of work and conditions dangerous or injurious to the health of children in factories. The investigation was made by physicians. They were interested in determining the facts relating to the work and health of the children, and their efforts and results undoubtedly accomplished much good. The investigations were begun without any definite idea of paying attention to more than the sanitary conditions in factories generally, but we soon realized that the best protection of the industrial workers was to look after the children and youths in gainful occupations. There was nothing flaring about the work, which by actual growth up to 1912 directed itself towards securing the greatest possible protection for the young person, who we realized had a longer life before him than the adult and who we felt ought to be insured the best possible chances of making the most of himself without any more risk from contagion of any kind or of avoidable occupational diseases or unhygienic conditions which encouraged diseases or disease tendencies than could be avoided.

As the result of the investigations, a considerable variety of occupations were practically closed to young persons under eighteen years of age and the occupations of many children changed. Many thousands of children were examined physically and conditions of ill health pointed out to their parents or guardians.

It was impossible, however, to obtain without the co-operation and assistance of women well trained in investigating the habits and interests of young workers the really practical results that might otherwise have been obtained. This is true because the services of public health nurses and social workers are necessary for the proper education and care of young persons in industry just as they are necessary in aiding progress in dispensary work by going into the homes of the sick.

The especial usefulness of women in this capacity is to follow the children along and help them live healthier and more useful lives. It will still be the function of the health physicians, however, to correlate the injurious influences of the occupation, of the home and of the habits of the individual, for these physicians are the persons who are most experienced in preventive medicine, and as public health officials are best able to judge as to the various effects of occupation or of living conditions on health.

Recently Hayhurst, for the Ohio State Board of Health, has carefully investigated the subject of occupational health-hazards in that state. He

has defined a certain number of health-hazards which he believes to be responsible for a large percentage of preventable sickness and mortality, *e.g.* tuberculosis, cancer, rheumatism, circulatory diseases, Bright's disease, and skin diseases. He believes that deaths occurring under seventy years of age from circulatory or heart diseases should be considered preventable.

"In Ohio in 1912 over one-sixth of all deaths were due to circulatory diseases and one-eighth of all deaths to organic heart disease alone. As a cause of death tuberculosis has been almost doubly outstripped by these three chronic degenerative diseases, 58% of which have occurred before 70 years of age, and 20% of which have occurred before 50 years of age." The total number of cases of positive occupational diseases and disabilities discovered by the Ohio investigation this last year, was more than 1200.

The health department of the city of New York has within the last two weeks added to its duties the one of studying the effects of occupation on health. A division of Preventable Diseases was established, including a central occupational disease clinic and an industrial hygiene educational division. During the interval mentioned the clinical material has exceeded that of the tuberculosis clinic. It is expected that work conducted along the lines indicated will be potent factor in the reduction of mortality and morbidity in the city.

Among the unofficial organizations interested in the prevention of occupational diseases is the American Public Health Association, which at its last meeting voted to appoint a special committee to consider and report on the subject.

What is really happening, therefore, is that through educational reforms the public is beginning to see what a few men like Lemuel Shattuck saw a great many years ago. In Shattuck's time but few persons were educated in sanitary science; now there are many persons capable of giving good sanitary advice. Sanitary professorships are being established in all of our colleges and medical schools, and the science of preserving health and preventing diseases is taught as one of the most important subjects.

Today in our community thousands of persons who are well are seeking advice as to how to keep well. Good health is being generally recognized as lying at the foundation of success for both the individual and the community.

Persons as a rule, however, are not yet ready to pay for advice as to how to keep well, except through taxation by the agencies of government.

The United States Government, state, city and some town agencies are distributing literature free of cost to the individual on any phase of preservation of health. Some of the more common subjects of the day, for one reason or another, are: the prevention of occupational diseases; the control of the notifiable communicable diseases; the study of the prevalence and control of venereal diseases; pneumonia; cancer; circulatory and organic heart diseases; Bright's disease;

ease; diabetes; the problem of infant mortality and child hygiene; school hygiene and the examination of school children; housing conditions; rural sanitation; and the prevention of the pollution of our water supplies.

To show one way and the extent to which some states are going in educating the inhabitants in the preservation of health, one state, at an expense of a number of thousand of dollars, issues a Mother's Baby Book bound in cloth. The book is sent by the Governor with an auto-graphed letter to each mother after the birth of her first baby. The object of the book is to give simple and plain instructions concerning pregnancy, childbirth and the care of babies. It is intended to supplement and aid the physician, and not to prescribe medical treatment. Another object of the book is to bring about a more complete birth registration which, in turn, permits a more complete record of infant mortality.

Public health service deals with law. The rights of property and persons must be guarded. On the other hand, no person shall so use his property, or allow it to be used, as to be dangerous to the public health. Furthermore, no person shall perform any act or cause any act to be performed which shall cause or spread dangerous diseases, or which shall otherwise endanger the public health. And, finally, every person should do or cause to be done all things reasonably necessary to prevent dangerous diseases, or the spread thereof, and to protect and promote the public health.

Reasonableness of action is important. Administrative authorities, local and state, must use due caution in passing ordinances, rules and regulations.

A health board to be successful must consider and weigh carefully the reasonableness of all its acts and the omission of acts. The reasonableness of acts or the omission of acts must always be based upon facts. They should never rest upon the work of any one man or class of men. The health authority of our local community is, with rare exception, in our Commonwealth the most powerful, final authority. A local board of health actively engaged and using all its powers is comparable to a court in continuous session.

The interpretation of laws enacted many years ago and their adaptation to existing conditions is often perplexing. And yet, law must be interpreted not only in the light of the knowledge existing at the time of its enactment, but in accordance with present day enlightenment, in keeping with advancing civilization. Measures which would have been sufficient and reasonable a few years ago, owing to lack of knowledge at that time, might today in the light of existing knowledge be declared unreasonable.

In order to prevent or suppress any communicable disease, we must have a knowledge of its mode of transmission. This is essential, whether for personal prophylaxis or in the general warfare against infection.

The most common communicable diseases that

show gradually diminishing death rates in our Commonwealth are: tuberculosis, typhoid fever and diphtheria. The causes for the diminishing death rate from these diseases are somewhat complex, although it is fair to give exceptional credit to (a) the use of bacteriological and research laboratory knowledge, (b) the improvement in the purity of our water supplies and in the proper removal of sewage, and (c) the combined efforts of the laity, the medical profession and sanitarians in the practical study of good hygiene and the prevention of disease.

TUBERCULOSIS.

Lemuel Shattuck in 1849 stated that if tuberculosis was "ever to be eradicated or ameliorated, it can be done only by preventive means and not by cure." Dr. Fisher of Boston, an eminent professional man of Shattuck's time, said that "preventive means, when known and fully appreciated by the community, will be adopted, to a greater or less extent, and by their adoption a vast amount of human suffering and human life will be saved." This was a true prophecy.

Hiram F. Mills, for thirty years with the State Board of Health, made in 1913 an exhaustive study of what has been accomplished in the past in the suppression of pulmonary tuberculosis, the present condition in the state of Massachusetts, and the most effective methods of acting and coöperating with all the forces engaged in the suppression of this disease. Mr. Mills' plan of campaign for the suppression of tuberculosis goes to the root of the matter by removing all conditions which cause its spread and inspiring hope in sanitary measures that will prevent its recurrence. The following statistical information is found in his report:

"Forty years ago the death rate from tuberculosis in Massachusetts was three times as great as it is now; today it has been reduced one-half in the past twenty years.

"There is no other state in the union, in which records have been kept, where the reduction of the death rate from tuberculosis has been as great as in Massachusetts.

"Furthermore, no other country in the world has done such effective work and accomplished so much in decreasing the number of deaths from tuberculosis per 100,000 of population as has the Commonwealth of Massachusetts."

In the further suppression of this disease the work of district nurses, public health nurses and social workers under the supervision of both state and local health authorities is strongly recommended in connection with the establishment and maintenance of tuberculosis hospitals and dispensaries.

TYPHOID FEVER.

About two years ago, at the suggestion of the reader, a special committee of state health officers, acting under his supervision, in-

vestigated the prevalence of typhoid fever in Massachusetts to determine what aggressive work might be inaugurated in our Commonwealth in order to reduce the typhoid mortality rate. It was found, from figures compiled by A. J. McLaughlin in the Public Health Reports, that the typhoid mortality rate showing for this country, as compared with the rate for certain cities of northern Europe, was far from flattering. The registration area of the United States had an average mortality rate for the years 1901-1909, inclusive, of more than six times the 1910 rate for the European cities. Many European localities had reduced the average mortality from typhoid to about 4 per 100,000. The result was equally unfavorable in making a comparison with the cities of this country. Of the 50 registration cities of the United States, with a population of 100,000 or over, in 1910, but 4 had a typhoid mortality rate of 9.5 per 100,000 or less.

The Massachusetts rate for the years 1908-10, the lowest typhoid mortality rate for 25 years, was nearly three and a half times higher than the low average European rate mentioned. While, however, there are and have been in these northern European countries fewer deaths from typhoid fever per 1000 inhabitants than in Massachusetts, the death-rates in Massachusetts have decreased more than in any one of those countries, and have decreased twice as much as the average of them all.

The committee found many difficulties having to do with the agencies through which the infection is spread, and recommended state-wide legislation for bringing up to a proper standard the health work in those communities as yet not sufficiently active or organized. The proposed legislation, however, has not been forthcoming. They were of the opinion that carriers should be restrained from handling all food products whether in dairies, kitchens or dining rooms. They were also of the opinion that "the physician who does not report a case of continued fever as a probable typhoid as soon as he has eliminated other common causes, and who does not in such a case take appropriate precautions, must shoulder very serious responsibility to the community for any subsequent results in the community."

In the past twenty-five years, while the population of Massachusetts has increased 67%, the deaths per year have increased but 30% and the death rates have decreased from 19.83 to 15.42, or 4.41 per 1000 living.

In the twenty years previous to the organization of the late State Board of Health there had been but little permanent change in the death rate in the state. The average death rate in that period was 19.33 per 1000 and in the last five years of the period it was no less than the average.

In the first twenty years of the work of this board the death rate decreased from 19.83 per 1000 to 16.33, or there were at the end of this

period 16% fewer deaths per 1000 per year in the state than at the beginning.

Mr. Mills, commenting on the causes of the diminished death rate, laid the greatest stress upon the purification of our water supplies. "Other elements," he said, "have entered into the problems which have in the past been of less importance, but now that so much has been done in the improvement of water supplies, the other elements, especially the improvement of the milk supply, assume increased importance in decreasing the deaths now caused by typhoid fever and other germ diseases."

The year 1914 is noteworthy for considerable diminution in the typhoid death rate in the country. Forty-one cities had a lower rate than in 1913 and 17 a higher; 24 cities had a death rate under 10 in 1914 as compared with 19 in 1913.

The two Massachusetts cities, with a population of over 100,000 having a death rate under 5, were Worcester and Cambridge.

While there has been a steadily diminishing mortality from the disease in this state there is great need of the combined efforts of the health authorities and the public in bringing about its eradication.

DIPHTHERIA.

The discovery by Behring of the antitoxic power of the blood in animals treated with diphtheria toxin, and the successful attempts of Behring, Roux and others to produce antitoxin on a large scale, led Dr. H. P. Waleott, chairman of the State Board of Health, in 1894, to consider the advisability of establishing a laboratory for the production and free distribution, under state supervision, of this preventive and curative serum.

It is unnecessary to make more than a brief comment on the value of the prompt use of antitoxin for both its curative and preventive effect. The striking difference in the fatality from diphtheria, according to whether antitoxin is administered early or late in the disease, is well known.

In the pre-antitoxin period, for the years 1891-1894, the total fatality per cent. from diphtheria was 28.3; during the antitoxin period for the years 1895-1913 the total fatality per cent. was 10.8.

With the intelligent co-operation of the medical profession and the general public, the control and prevention of diphtheria is feasible. We must, however, have a knowledge of its prevalence and a better knowledge of its causation. We all know of the occasional outbreaks of positive bacteriological cases with no clinical symptoms, in other words, of the frequent finding of diphtheria bacilli in healthy throats. Whether such outbreaks are due to certain meteorological conditions, favoring the activity of the bacilli, seems to be a proper subject for further inquiry. Personally I am inclined to give

weight to such a theory rather than believe that all cases result from direct case-to-case infection. I believe that every case of positive culture ought to be carefully investigated by a local health official and full records kept in the local office for ready access to the state health officers, so that the efforts of the bacteriologist and investigators may be combined in the interest of more accurate knowledge as to the control and prevention of this disease.

From 60% to 70% of all deaths from diphtheria occur in children under five years of age.

All cases of sore throat should be carefully watched, and, if more than one case occurs in a family, it should be regarded as suspicious.

Immunity in diphtheria is generally incomplete and of short duration. It lasts from a month to several years, varying greatly in different individuals, and being very brief in children.

Schick has recently proposed a simple clinical test for determining whether a person is more or less immune to diphtheria or whether a state of susceptibility exists. The most practical application of Schick's test, according to Kolmer and Moshage, "consists in applying the test as a preliminary measure to all persons who have been exposed to diphtheria, and immunizing only those who react positively." The test is "based on observations of von Behring that as little as one-hundredth of a unit of anti-toxin per cubic centimeter of our serum will protect a person against diphtheria."

Bundesmen of the Chicago Health Department points out that the use of the Schick test "permits a great reduction in antitoxin bills, that much needless pain and annoyance of patients is avoided, and that the possibility of anaphylactic shock is greatly minimized."

MEASLES.

In the year 1910 over 11,000 American children died from measles. This number did not include the great number of children who died from broncho-pneumonia, a disease which is so frequently caused by measles. When it is considered that measles occur most often during the school period it will be seen that thousands of children are kept from school for weeks at a time on account of this disease. Leaving out of consideration the death and suffering caused by so many children stricken with measles, the economic loss is a most serious one.

Measles is now regarded as a preventable disease, yet in Massachusetts, in 1913, there occurred 315 deaths from this cause. In Illinois, during the year previous, there occurred from measles more than 650 deaths.

W. C. Rucker of the United States Public Health Service, commenting on the ravages caused by measles, said: "It is little less than criminal to permit children known to have measles to come in contact with well children. . . It is the duty of private citizens and

municipalities to take every known measure for the prevention of the spread of this disease."

The administrative control of measles remains one of the most baffling problems with which we have to deal.

SCARLET FEVER.

The essential features of the prevention of scarlet fever consist in isolation and practical disinfection. While scarlet fever is not so highly contagious a disease as measles, both diseases must be dealt with from a public health view point in practically the same way. Until more exact knowledge is obtained concerning the channels of entrance and exit of the virus and its mode of transmission, public health authorities will be more or less handicapped in its control. The period of isolation is necessarily more or less arbitrary in scarlet fever for we have no accurate way of determining just how long a child remains infective.

WHOOPING COUGH.

Dr. John Lovett Morse in "A Plea for More Efficient Public Regulations Relative to the Control of This Most Serious and Fatal Disease," called attention to the fact that whooping cough is almost everywhere more fatal than scarlet fever and less fatal than diphtheria. In 1911 the reports from thirty states showed that 6251 died from whooping cough, 4323 from scarlet fever, and 9579 from diphtheria. During the same period in eleven states where 1216 children under five years of age died from whooping cough, 3860 children under five years of age died from bronchitis and broncho-pneumonia. While it was impossible to know in how many cases the bronchitis and broncho-pneumonia were secondary to whooping cough, Morse pointed out that they were undoubtedly due to it in a considerable proportion of them. He showed by statistics the lack of proper regulations relating to the isolation of children ill with measles and to the exclusion from school of other children in the family; of the scanty provisions for the hospital treatment of whooping cough in this country; and of the lack of a general rule as to the management of children with whooping cough in out-patient and dispensary clinics. Morse emphasized the need of making strenuous efforts to diminish the terrible mortality from this disease. He said (1) "It is fair to assume that the disease is transmitted by the secretions of the respiratory tract and that, while most contagious during the catarrhal and early weeks of the spasmodic stage, it is also contagious throughout the whole of the spasmodic stage. (2) Since about 95% of the deaths from whooping cough occur during the first five years and the great majority of these in the first two years, the most important thing is to keep babies and young children from having the disease. (3) It can be confidently predicted that when the physicians and the public understand what

whooping cough really means, when proper regulations for its control are established and enforced, and when sufficient hospital accommodations for its care are provided, whooping cough will cease to be the scourge which it now is."

MALARIA.

Malaria is another of the most prevalent of the preventable diseases. Owing to the lack of morbidity statistics relating to this disease, however, it is impossible to make a specific statement regarding its prevalence.

Rosenau states that "despite the fact that we have more exact knowledge of malaria . . . than perhaps any other disease, despite the fact that we have accurate means of diagnosis and a ready cure, and despite the fact that we have assured measures of prevention, malaria counts its victims by the hundreds of thousands annually."

Malaria was added to the Massachusetts list of notifiable diseases last September, so that now all cases of the disease must be promptly reported by physicians to the local boards of health and all deaths from malaria are required to be reported weekly by local boards of health, to the State Department of Health. We shall have soon, therefore, in Massachusetts, reliable morbidity and mortality statistics on malaria.

Among the diseases not classified in our Commonwealth as dangerous to the public health, hence notifiable to the health authorities, but claiming the attention of the public as preventable, are (1) pneumonia and (2) the venereal diseases.

PNEUMONIA.

Pneumonia is one of the most widely distributed and fatal of the acute communicable diseases. According to the U. S. census, more than 10% of all deaths in the registration area of the United States were due to pneumonia. And yet this disease now claims our attention as a *preventable* disease.

For the year 1913 there were returned to the State Department of Health of Massachusetts 6112 deaths from pneumonia and broncho-pneumonia as compared with 5965 deaths for the year 1912.

Seasonal prevalence in 1913 showed the greatest number of deaths from pneumonia in February and March and the smallest number in July and August. This shows that deaths from pneumonia occur mainly during those months when people live in closed houses. The control of pneumonia involves a careful study of the localities, including the industrial communities, and the conditions under which people live and work. The assistance of district health officers, local health officials, nurses and physicians in making such a study or survey is essential in bringing about the decrease in death rates from this disease.

VENEREAL DISEASES.

It would be difficult to mention any one disease that is of so much importance to the public welfare as the venereal diseases. The time is long since past for neglect and silence concerning them. We should institute a rational and vigorous educational campaign in order to bring into the homes ideas that cannot fail to have influence.

There is at present no method of getting accurate reports of the occurrence of cases of venereal diseases. The American Public Health Association has appointed a committee to study and report upon the problem, and the American Social Hygiene Association in New York City has been organized as a national clearing house. Dr. William F. Snow, secretary of this association, states that within the last two years important advances have been made in placing the movement on a sound basis, and that the campaign against venereal diseases has extended to such problems as the control of cancer and the promotion of mental hygiene. A number of state and city health authorities have instituted some important measures. Blaisdell quotes New York City statistics as probably representing as accurate an estimate of the amount of syphilis in a given community as any now available. During the fourteen weeks from July 4 to October 3, 1914, 25,633 infectious diseases were reported in the city of New York, with a population of a little over five and one-half millions. Syphilis stood first on the list with 6342 cases, or 28%; tuberculosis second, 5525 cases, or 21%; diphtheria third, 3370 cases, or 13%; measles fourth, 2750 cases, or 11%; and scarlet fever fifth, 1064 cases, or 4%. Blaisdell, in a study of 60 cases of fresh syphilis in the Skin Department of the Boston Dispensary, found that these 60 patients had exposed 1227 people.—134 by coitus, 442 by family or boarding house life, and 651 by occupational association. The amount of syphilis in Massachusetts today is unknown, and the only index that we have of its prevalence is from the records of hospitals and other institutions. Reports received in the Massachusetts Department of Health from 34 hospitals in the state show, for the year 1914, 4068 cases of syphilis and 3062 cases of gonorrhea.

The Boston Dispensary and some other institutions have established social service work with venereal disease cases. Michael M. Davis, Jr., director of the dispensary, believes that the reporting by public medical institutions to the State Department of Health of cases of syphilis and gonorrhea would be beneficial if properly administered. The records should not be open to public inspection and should be kept only by specified officials of the department. Davis gives three reasons why such reporting would be of value, viz.: "First, gonorrhea and syphilis can only be successfully dealt with from the public health standpoint when they are regarded as contagious diseases rather than as venereal dis-

eases; second, reporting will give the physicians, administrators, and trustees of hospitals and dispensaries a much sharper sense of responsibility for keeping their patients under treatment and for securing medical examination, and, when necessary, treatment, for the members of the patients' families who have been exposed to infection. The out-patient clinics of Boston alone receive several thousand new cases of syphilis and gonorrhea annually. That these clinics should feel their public responsibility in this matter and make it effective by proper action, as can be done in a large majority of cases without insuperable difficulty, is extremely important in the campaign against these diseases and I believe that reporting by name would be useful as a stimulus to these institutions. Third, while reporting cases merely by number would be useful because of the educational effect upon the public of the statistics gathered, and would be better than no reporting at all; reporting by name is the reasonable and ultimately necessary method, and is not open to serious objection if properly administered. E. E. Southard, commenting on a series of 6000 Wassermann tests for syphilis performed in the Harvard Neuropathological testing laboratory, states that it is clear that the percentage of outstanding syphilis is not so high as alarmists sometimes think, and that it is probably far below 23%. He gives 15% as the approximate percentage worked out for the Psychopathic Hospital intake which, he says, corresponds to the idea prevalent among dermatologists as to the general percentage in the community which they deduced from cases in skin clinics.

Southard believes the Wassermann method of diagnosing syphilis of such value to the community that a community Wassermann service might well be undertaken by a State agency. I may say that a State law with reasonable appropriation has now been enacted to enable the State Department of Health to develop such a service.

W. G. Stimpson of the United States Public Health Service reports on the treatment with salvarsan or neosalvarsan of 430 cases of syphilis, that there is no question of their great benefit to mankind. Many persons, he says, who were partially or totally disabled, have regained their health after the administration of salvarsan and have returned to work. He, however, suggests caution in using it in tertiary forms of the disease.

Frederick H. Baker, in a paper read at the January, 1915, meeting of the Massachusetts Association of Boards of Health, said in conclusion: "I should like to see appointed a committee from this association on the control of venereal diseases. I should like to see this committee, among other things, consider especially:

"1. The advisability of making syphilis and gonorrhea reportable diseases.

"2. The advisability of securing the passage of a law making these records private records.

"3. The advisability of the committee conferring with the health commissioner of this state to secure the establishment of a state Wassermann laboratory, a laboratory to which the workers in the municipal laboratories could go to improve their knowledge, and to establish a uniform technic throughout the state.

"4. The advisability of securing the passage of a law compelling public institutions to treat acute venereal disease."

Of the reportable diseases, special reference should be made to ophthalmia neonatorum and rabies; the former unprevented and untreated leading to blindness; the latter, unprevented, to a most exruciating death.

OPHTHALMIA NEONATORUM.

Ophthalmia neonatorum is a preventable disease and its prevention is a very simple matter, and yet it has been estimated that about one-fourth of all cases of blindness are due to this disease, and that the annual cost to the people of the United States to care for those who are blind from this cause is about \$7,000,000. The preventive treatment of this disease is familiar to you all,—that of cleansing the eyes of the new-born infant and dropping one or two drops of silver nitrate or argyrol solution into each eye. The state boards of health now pretty generally make such treatment available for physicians, and when it is universally employed there will be a marked reduction of blindness in children, and the country will be saved many millions of dollars.

Efforts have been made by our state physicians in Massachusetts to make sure that the infants were receiving proper medical and nursing care. Physicians have been made to account for failure to report cases of the disease. Ignorance of the law requiring such cases to be reported; ignorance of proper methods of treatment, and carelessness on the part of local boards of health, physicians, nurses, midwives and parents, have been observed. There has been noted an improved condition on the part of many boards of health and physicians as to the recognition of the seriousness of this disease and its ultimate results if neglected or improperly treated. There has been also observed an increasing tendency upon the part of some physicians, as a routine method of treating the disease when it appeared, to use the silver nitrate prophylactic provided by the State Board of Health as a preventive of this disease. In a few cases this treatment was followed by an increased activity of the inflammation. Certain physicians appeared not to consider a case as having a discharge until the eyes were literally overflowing with thick pus. The prophylactic furnished by the State Board of Health is being used more frequently. The public is fast becoming educated to the desirability of its use, and is inclined to criticize the physician for failure to use it if the eyes later become inflamed.

As the result of an energetic campaign of the State Board of Health, carried on since 1909 through the State Inspectors of Health in co-operation with the Massachusetts Commission for the Blind, the percentage of blindness due to ophthalmia neonatorum has been reduced in the state of Massachusetts at least 50%.

DOG BITE, RABIES AND PASTEUR TREATMENT.

The treatment by the Commonwealth of cases of dog bite, by dogs known to be rabid, was introduced under my supervision last summer while Acting Commissioner of Health. Cases of dog bite had been increasing in Massachusetts and many people were unable to get prompt and proper care. Persons had died from rabies without receiving the Pasteur treatment.

Since May, 1914, the State Department of Health have received notice of 212 cases of dog bite. Of this number, 68 persons were known to have been bitten by rabid dogs. Fifty-three of the 68 persons were given the Pasteur treatment by our district health physicians.

There were six fatal cases, only one of which was given the Pasteur treatment. The other five persons either did not appreciate the importance of the Pasteur treatment, or, owing to unavoidable reasons, were not reached early enough for treatment.

Arrangements were made with the Hygienic Laboratory of the Public Health Service at Washington to supply the anti-rabid virus to the State Department of Health, and in every case the virus was administered in accordance with the stipulations of the Hygienic Laboratory.

It is optional with physicians as to whether they procure anti-rabid virus from New York or elsewhere and themselves give the Pasteur treatment, or whether they desire to have the state health officers administer free the virus furnished by the United States Hygienic Laboratory.

The Washington virus, as now sent to our department, is in the form of small pieces of rabbit cord, which must be emulsified before it is used. It is hoped that in the near future the State Department of Health laboratory will make and furnish the virus in such form as to be practicable for the use of practising physicians.

Now just a word as to the protection of water supplies and the disposal of sewage; the correlation of school and community health work; improvements in housing conditions; and infant mortality and child hygiene.

WATER SUPPLIES AND SEWERAGE.

The prevention of the pollution of our domestic water supplies is an important sanitary and economic problem that receives much attention. The wastes of human life concern us especially,—feces, urine and sputum. These may enter the surface water directly in various ways.

The work of the Massachusetts State Board of

Health relating to water supplies and sewerage systems has had such a well recognized value as to need no special comment.

THE CORRELATION OF THE WORK OF SCHOOL PHYSICIANS AND LOCAL AND STATE HEALTH OFFICIALS.

It is essential that there be a thorough and well-supervised system of school health work. It is further essential that there be a practical correlation of the school and community health work.

One of the most practical questions that arises during epidemics of disease is the question, "Shall we close the schools?" In the current Bulletin of the United States Bureau of Education containing contributions from American medical journals on "The Health of School Children," Francis George Curtis concludes from his experiences "that keeping the schools open offers the best chance of safety for the scholars, both collectively and individually." "If the schools are kept open," he says, "and the children continue in the class-rooms as usual, they are under strict observation and examined daily by the school physician, suspicious and infected cases being sent home for observation or treatment." In this way, Curtis believes, "many children are sent home before they have had an opportunity to infect others, thus reducing the probability of spreading infection. Further than this, the attention of the parents is called to the fact that the child is feeling ill and he is brought under treatment earlier."

Among some of the urgent problems of the day are those relating to (a) the medical inspection of children in rural schools, (b) the age and seasonal incidence of diseases of children, (c) the prophylaxis of measles, (d) vaccination, (e) cardiac disease in childhood, (f) tuberculous bronchial glands in children, and (g) the care of the eyes of school children. These and all such problems indicate the need of state advisory supervision of school and community health work. It would insure local supervision of the medical inspection of schools, regardless of whether that work is controlled by the school committee or the board of health; it would preserve local interest and initiative in all health work; and it would bring the state educational and health authorities together on a problem that demands combined action in the interest of the public welfare.

HOUSING CONDITIONS.

Closely allied to the study of infant mortality is the one of providing sanitary homes for the least resourceful people. The question, "What constitutes a home unfit for human habitation?" is one that health officials everywhere would do well to keep constantly in mind.

Time and again, as Kober has pointed out, it has been shown that high mortality rates have appeared hand in hand with unsanitary

and overcrowded homes. "In some cases the general death rate for large groups of population living in unsanitary dwellings amount to double or even treble what might be called the normal death rate. On the other hand the vital statistics of London show that the death rate in the improved dwellings for wage earners is far below the general mortality of the city, and the experience of housing companies in the United States, notably in Washington, D.C., is quite gratifying."

We cannot but view with satisfaction the great developments that are taking place in municipal housing. Improvements in housing conditions and sanitation generally give rise to the best results in checking the ravages of tuberculosis and many other infectious diseases. As Thomas Gibson, of England, tersely says: "Clean houses, clean courts and streets, clean drains and clean sewers, clean water and clean food, clean air and clean bodies represent the consummation of the sanitary ideal."

INFANT MORTALITY AND CHILD HYGIENE.

Second to none in importance is the branch of public health work which reduces infant mortality. In carrying out this work we must have correct vital statistics. Unfortunately our infant mortality rates are not in general of a character which make it possible to arrange, analyze, combine and obtain proper deductions and conclusions from them in such form as will contribute most to the improvement of practical life. Some communities, however, possess statistics accurate enough to enable competent observers to draw conclusions which show results of an encouraging character.

Among the specific problems of infant mortality must be mentioned those relating to the production and distribution of clean milk, artificial versus breast-fed children, imperfect feeding and drugging of infants, married women workers in factories, maternity and factory labor, and housing conditions.

The Visiting Nurse Association of Boston did pioneer work on such prenatal care, having begun in 1901 to instruct pregnant women in suitable care and hygiene.

Emmons and others are emphasizing the fact that prenatal care is fairly to be considered a part of preventive medicine, and that the health authorities should lay plans for the prevention of death, disability and weakness from inefficient care during pregnancy and confinement. Emmons reports that Pittsburgh has recently been given \$3,000,000 to equip a maternity plant consisting of a modern hospital with local dispensaries and all the necessities for a complete service to the city.

Williams, in a study of 705 fetal deaths occurring among the white and colored races, in 10,000 consecutive admissions to the John Hopkins' Hospital, found that syphilis was the most common single etiological factor concerned, in that it was accountable for 186 of the 705 deaths

26.4%. He observed that it was more frequent in the colored than in the white race, the incidence being 35% and 15%, respectively, and that it must receive important consideration in the reduction of infant mortality.

Holt and Ellen C. Babbitt in a report on 10,000 consecutive births at The Sloane Hospital for Women, New York City, state that congenital weakness and atelectasis together made up 58% of the total deaths, that still-births must be reckoned as one of the large problems in infant mortality, and that except for the larger rôle played by syphilis, the causes of still-birth in no way differ from those which produce death during the first days of life. They believe that the great number of deaths from congenital weakness can be reduced only by care of the mother during her pregnancy. The only important disease developing after birth was pneumonia. Holt says that the campaign to reduce infant mortality is essentially a campaign of education and that the two greatest agencies are: (1) the visits of the nurse to the home and (2) the attendance of the mother at the infant welfare station. In New York City, he says, there has been a reduction in infant mortality of 30% in five years and a steady fall among infants in the summer.

Knox of Baltimore states that "tuberculosis is only two-thirds as destructive for people of all ages as are the conditions which produce the high death-rate during the first year of life." He mentions three fundamental rights of infants which if allowed will save thousands of babies now born weak or prematurely. These rights or conditions are: (1) that the parents must be healthy, (2) that the mothers should be better cared for during pregnancy, and (3) that the labor must be skillfully conducted.

While many other diseases or affections might have been referred to, and many problems relating to health considered, as for example, the use and abuse of foods and drinks, habits of living and other influences on health and longevity, I have aimed to present in a general way such a number and variety of problems as are now dealt with by the majority of public health officials in communities like our own.

The so-called "new idea" of securing health and happiness through public hygiene and preventive medicine is but an awakening of the general public to the value of being taught the causes of disease with the view of removing or avoiding these causes and living without being sick.

"The public," as Lovejoy declares, "must put an end to incompetency or self-interest in its public-health service, and we submit that medical associations, state boards or departments of health, physicians, and experts in hygiene,—those who best know the facts,—must serve as pioneers in demanding that the public health department shall be elevated to its rightful place, and be made the most important arm of city, county or state government."

Health work is not a matter of merely local, but of national and international interest and importance. Local interest, however, comes first and must be maintained. The modern tendency in health administration is from local to national and international rules and regulations which insure uniformity of action. "Health work," as the Public Health Committee of the New York Academy of Medicine recently declared about quarantine work, "is essentially scientific in its nature, and cannot be carried on efficiently unless tenure of office is independent of changes in administration and of polities."

Original Articles.

THE OPERATIVE TREATMENT OF FRACTURES.*

BY CHARLES L. SCUDER, M.D., BOSTON.

THE presence of practitioners of both medicine and surgery at this 70th Annual Meeting of the Medical Society of the State of Ohio offers a fitting occasion for the consideration of the treatment of fractures of bone.

Several important events have profoundly influenced the treatment of fractures. The introduction of ether anesthesia in 1846 made possible painless attempts at the setting of fractures. About twenty-five years later the development of asepsis assured the safe care of compound fractures. Still twenty-five years after this the Roentgen ray demonstrated to surgeons that the supposed complete reduction of a fracture was in many cases but a caricature of reduction. And again, after twenty-five years, autogenous bone grafting is affording a sure treatment for ununited fractures.

Thus these four general factors—anesthesia, by producing painless relaxation; asepsis, by preventing infection; the x-ray by visualizing the fractured bones; and bone grafting, by stimulating the reparative process—these four factors have had a direct bearing upon the development of fracture treatment during the past seventy years.

This is not the time or place to enter upon a discussion of the technical details of fracture treatment, however much there may be of interest and of practical value in such discussion. I would call your attention rather to certain general considerations in order that we may better understand the trend of the treatment of these injuries to bone, and that we may thus arrive at conclusions which will prove helpful in establishing a better therapy.

It is unnecessary to demonstrate to this audience that the present methods of treating fra-

tures are unsatisfactory. We are aware of this fact from our own private experience. Those of us fortunate enough to be connected with hospitals where such injuries are received for treatment are convinced that this is true from our larger hospital experience.

Why are present methods of treating fractures unsatisfactory? The answer is—Because the functional results are so often poor. We all know of this from common observation.

Previous to a few years ago all fractures were treated by a non-operative expectant method. The x-ray finally disclosed that the real reason why the functional results were so poor was the faulty setting. Surgeons were not then acutely aroused by this disclosure of the x-ray. The surgical mind has been occupied during recent years with many other problems brilliant in prospect and remarkable in achievement. The study of methods for the improvement of fracture results has therefore been postponed. There has been little real interest on the part of the profession in this subject. Consequently the results have continued poor.

Certain events have directed attention to fractures. The large social movements for betterment have stumbled upon many poor results of fracture. Familiarity of the layman with x-ray plate interpretations has led the fracture patient, often improperly, to demand a better setting of the fractured bone. The admission of the x-ray plate as evidence in court has undoubtedly had a compelling influence. The Workmen's Compensation Act has directed attention to the financial loss due to fractured bone. It is necessary under the law to determine the elapsed time between the accident and the return to normal work. This time away from the earning of a living wage is the economic measure of the efficiency of fracture treatment.

The esthetic standard of the past and the perfunctory record of accomplishment must give place to the economic standard of early functional usefulness and the accurate record of events and conditions from the receipt of the injury to the resumption of full time work.

In other words, a demand has been made upon the surgeon by the laborer and the employer of labor for better results following all fractures of bone. There is today a demand arising from the surgical profession itself that more accurate and scientific work be done in this field of surgery. There is thus a demand from without and a demand from within, both of which must and will be recognized.

What are the methods available for the treating of fractures today? These methods are the non-operative and the operative.

By the non-operative treatment I understand the use of traction and counter-traction of all kinds, including Steinman's and Codivilla's nail extension, manual manipulation for reposition, massage, and fixation by splints and external apparatus. This treatment has its most faithful exponents in Professor Bardenhauer, Gräfsner

* The Oration in Surgery delivered at the annual meeting of the Ohio State Medical Association, Cincinnati, May 6, 1915.

and Schrecker of Cologne, and by J. Lucas-Championnière of Paris, and by F. Steinman of Bern, Switzerland, and by Codivilla.

By the operative treatment I understand the direct reduction of the fracture and fixation of the bone with or without foreign material through an incision in the soft parts. This treatment has been perfected by Lambotte of Antwerp, Lane of London, by Huntington, Marin, Darrach and others in America.

Professor Bardenhauer contends that an exact anatomical result is not essential for a perfect functional result. He believes that traction and counter-traction are efficient means for securing perfect adjustment of fractured bones and always a sufficiently accurate adjustment to give a functionally useful limb. His results justify his contention. His methods should be more carefully and painstakingly employed in certain fractures. Few men in this country appreciate what can be accomplished by the non-operative method, for it has not been employed consistently and persistently in any large group of cases. Professor Bardenhauer almost never operates upon a fractured bone.

Mr. Lane, on the contrary, contends that an anatomically perfect setting of a fractured bone is necessary to a functionally useful limb. Mr. Lane makes it apparent that the way to secure an anatomically perfect bone after a fracture is by operation and direct fixation of the fragments by a steel plate and screws. Mr. Lane goes to the opposite extreme from Professor Bardenhauer, and operates upon practically every fracture.

I believe everything that is good and effective in both methods should be employed in the treatment of fractures. I believe that Mr. Lane has popularized the operative treatment that its indiscriminate adoption has done enormous harm. I believe, on the other hand, that he deserves great credit for rousing the surgical world to the necessities and possibilities of the operative treatment and that he merits especial praise for his development of the technic of the operative method.

The pendulum has swung away from the traction treatment to the frequent employment of operation in fractures. Improper and unnecessary operations are being done by incompetent men. There is no more difficult operation in surgery today than a carefully conducted operation upon a fractured bone. The longer the operation is done after the fracture the harder the technical work will be. Operations upon fractured bone should only be done by surgeons of very considerable general surgical experience. The conditions under which they are done should be surgically ideal. The necessary and special instruments for precision and convenience should be at hand. If the conditions as indicated above are not present in a given case operation had best not be undertaken.

There is no time upon this occasion to enter into a discussion or description of the technical

details of the often difficult non-operative treatment, nor is there time to describe the details of the operative treatment. Each method is extremely difficult to master in its entirety. Each method is efficient under the same and diverse conditions.

This is the question that concerns us now and here: Which method, non-operative or operative, shall we employ in a given case of fracture? Where do we stand today with reference to the two extremes of treatment? In choosing between these two forms of treatment we must constantly keep in mind that the best methods of each are being compared. There are certain guiding principles which will help very much in coming to a decision.

1. The nearer to an anatomical reposition of the fragments of the fracture it is possible to come the greater will be the likelihood of securing a good functional result.
2. A primarily early operation is more desirable than a delayed operation. The results of secondary operations are unsatisfactory.
3. There is less likelihood of the non-operative treatment being successful as age advances.
4. In childhood the operative and non-operative treatment about equal each other in good results.
5. The mortality of the operative treatment is a negligible quantity.
6. Many undesirable terminal conditions will be avoided if the operative treatment is appropriately employed.

It is familiar to all of us that untreated or medicinally treated chronic ulcer of the stomach and duodenum may result in serious hemorrhage, in perforation of the viscera, in obstruction (pyloric), in hour-glass deformity and thus gastric obstruction, and in carcinoma. These four conditions associated with chronic ulcer are, as a rule, terminal conditions usually avoidable if surgical treatment is instituted at the proper time.

Likewise, I believe that the non-union of fractures, the malunion of fractures, infections with osteomyelitis associated with compound fractures, disabling and painful static conditions, stiff and painful joints near to fractures of the shafts of the long bones,—I believe that these are terminal conditions usually following inappropriate non-operative treatment. It is important that such terminal conditions should be avoided. I believe that the properly applied primary operative treatment will surely eliminate many of these disastrous terminal conditions.

7. The availability of either method will help to decide for or against it. If a man understands the technical details of the non-operative treatment and the operative treatment is not available, even though it be indicated, under these conditions very many fractures should be treated by the non-operative method. Good results will follow. If, on the contrary, the operative method is available and ideally possible, then the case being suited to operation, that method should be selected.

Keeping these seven general principles in the background we are confronted with a fracture. In order to decide upon a method of treatment

we must still have a knowledge of the following facts concerning the case in question:—

1. The age of the individual. Is he an infant, a child, a young adult, a middle-aged person or an old person?

2. Is the fracture open or closed (that is, in old nomenclature), compound or simple?

3. Is the fracture fresh, recent or old?

4. Is the fracture complete or partial?

5. Is the fracture transverse, oblique or comminuted?

6. What is the exact situation of the fracture in the bone? What part of the shaft is involved? Is a joint involved?

7. Are there present either local or general conditions apart from the fractured bone, which have a bearing upon the choice of treatment, such as—

(a) Injuries to other bones or to soft parts?

(b) Injuries to viscera?

(c) Is any pathology present in the body such as tuberculosis, syphilis, malignant disease, diabetes, arterio-sclerosis?

Accurate information should be had upon all these matters before treatment is chosen for a given case, that is, if the treatment is to be chosen wisely.

8. Lastly, but a very vital fact, the results of the operative and non-operative treatment must be known in all types of fracture under similar local and general conditions.

The evidence from end results is being accumulated which eventually will make it pretty nearly always possible to decide what treatment any case should receive at the outset, that is, immediately upon receipt of the injury without any experimentation.

The results studied by the Committee of the British Medical Association, and the results now being studied by a Committee of the American Surgical Association, the results of smaller groups of cases from the experience of individual surgeons, all these returns form a basis for judgment as to the relative merits of the two great methods of treatment. As the returns of treatment are more accurately and painstakingly, that is scientifically, made, present standards of judgment will change. Fractures receiving one treatment today will be more efficiently treated by another method tomorrow perhaps.

It is a long cry from the non-operative treatment of Bardenhauer and his associates to the non-operative treatment commonly employed in this country today. It is likewise, a long way from the operative treatment of a skilled surgeon working under ideal conditions and the operative treatment commonly followed.

The best operative treatment gives good results. The best non-operative treatment gives good results. We need both forms of treatment.

The treatment of each case of fracture is a separate problem to be solved upon its own merits and according to the plan above outlined.

To take a concrete instance, I find that personally I am today operating more frequently upon fractures of the shaft of the femur, than I did formerly. I am finding that fractures in the upper third in the middle and in the lower third of the shaft, particularly in an adult, and if the line of fracture is transverse or slightly oblique,

recover with better knee and ankle joints if the long traction, made necessary by the non-operative treatment, is avoided. The restoration of the femoral shaft to its normal alignment, and the securing of the too often forgotten normal anterior curve of the femur, place the individual upon a better basis and the functional return to normal is hastened thereby.

There are certain matters of importance which should be briefly mentioned in this connection. I am very greatly impressed by the lack of interest in fractures, and the general poor treatment which fractures receive in most hospitals in this country. I am also greatly impressed by the very great desirability of properly organized and conducted practical courses in fracture treatment for practitioners of surgery, where a man may become familiar with all sides and all phases of the best methods, both operative and non-operative. Undergraduate instruction in fracture treatment must always remain elementary.

I believe that the movement toward specialization in surgery is an inevitable and normal movement. Surgery today is too large a field for one individual to master successfully. The solution of the present inadequate handling of the fracture problem is in my opinion the gradual development in each community of men particularly fitted and interested in the treatment of fractures to whom a large part of such work will be willingly delegated. These men should be general surgeons.

I believe that the large hospitals of our various cities will in time have fracture wards with continuous service, including an out-patient department, a visiting staff and house staff and nurses trained in the care of fractures. Such fracture clinics will afford ideal opportunities for instruction to undergraduates and practitioners and will also stimulate investigatory work and research. Such a clinic will become great laboratory for the study and advancement of the scientific treatment of fractures of bone.

Symposium on Endocarditis.

ENDOCARDITIS IN CHILDREN: ITS PROPHYLAXIS AND TREATMENT IN A OUT-PATIENT DEPARTMENT.*

BY RICHARD S. EUSTIS, M.D., BOSTON.

[From the Children's Medical Department of the Massachusetts General Hospital.]

THE following paper is a preliminary report of a special heart clinic which has been conducted in the Children's Room at the Massachu-

* Read before the New England Pediatric Society, April 30, 1915.

NOTE.—SYMPOSIUM ON ENDOCARDITIS IN CHILDHOOD.—These investigations represent an attempt by the Staff of the Children's Medical Department of the Massachusetts General Hospital to

sets General Hospital in the attempt to solve two problems in the treatment of early or suspected endocarditis in children. The first question is whether the strict rest in bed for weeks or months, which is almost universally advised in these cases, can be carried out from an outpatient department, and we have decided that it is possible by the use of certain methods, which will be described later. The other question is whether this prolonged period of rest is worth while, whether it actually does prevent the development, or moderate the severity, of chronic heart disease in later life, and the answer to this only time will show.

We believe that endocarditis, chorea, rheumatic fever and tonsillitis are frequently not separate entities but merely different manifestations of the same infection; that the last three are serious chiefly because of their close association with the first; that endocarditis in its earliest stages is no more surely recognizable than is incipient phthisis with a negative sputum, but that if we delay treatment until there is a definite diagnosis of endocarditis we are wasting valuable time, just as does the physician who waits for the appearance of tubercle bacilli in the sputum before sending his patient to a sanatorium. That is, treatment, in order to be effective, must be begun before the diagnosis is made, and the results of treatment are to be looked for, not in the number of "cures," but in the number of cases that can be brought through a "rheumatic" attack (using the term in its broadest sense) without permanent cardiac involvement. Hence all cases of chorea and rheumatism and those cases of tonsillitis which show any evidence of cardiac abnormality should be treated as cases of acute endocarditis and kept in bed until several weeks after the temperature and pulse have reached normal.

With the aid and interest of a number of friends, we have been enabled to make a beginning of this method of treatment in the Children's Room at the Massachusetts General Hospital. For some years we have had a sum of money at our disposal for the purpose of preventing heart disease. At first this was expended in maintaining a small "heart hospital" of ten beds, where selected cases of early endocarditis could be given intensive treatment. This will be reported on in full by Dr. J. H. Young, who was in charge. It was not entirely

satisfactory in itself, and also because it could handle only a very small proportion of the cases. The rest we treated as out-patients and, in spite of our best efforts, child after child would break loose from parental control, or the parents themselves would decide that further care was not needed, so that our results were far from satisfactory. The energy of doctors and social workers was dissipated among these old, recurrent, and comparatively speaking, hopeless cases, while at the same time many new and curable ones were allowed to become chronic through want of attention.

Beginning March 1, 1914, a special heart clinic was instituted for the home care of cases of early endocarditis. All children with rheumatic fever and chorea are referred to it and also any cases of tonsillitis which show the slightest evidence of a "rheumatic history," or any cardiac abnormality. The doctor in charge devotes two mornings a week to this clinic, seeing about ten patients a morning and spending anywhere from 5 to 30 minutes on each one. The social worker is invariably present, in the same room with the doctor and patient, in order to give the doctor the benefit of her knowledge of the home conditions and also to hear what instructions are given to the patient. The rest of her time she spends in visiting the members of the clinic in their homes, helping and encouraging the parents to follow the directions, bringing toys and games for the children to play with or books for them to read, and making herself generally helpful. She also, although not a trained nurse, records the temperature and pulse rate at each home visit, and reports frequently to the doctor the condition of the children and obtains his advice without bringing them to the clinic too often.

After the medical history and physical examination of a new case are over, the doctor spends considerable time explaining the nature of the trouble to the mother, emphasizing the imperative necessity of immediate rest in bed and endeavoring to get her intelligent cooperation. Severe cases, and cases in which home conditions are very poor are given ward treatment at once; with the others a strong effort is made to carry out the treatment at home. Careful directions are given the mother and repeated until she understands them. If possible the social worker visits that very afternoon, or certainly the next day, and thereafter as often as the individual case seems to demand. In some cases she visits almost daily at first; in others once a week suffices, the important point being to keep the child in bed and quiet. With this close supervision it is possible to let the child go two or three weeks before asking for another outpatient visit. Any complications or unusual symptoms are reported to the doctor and he decides whether or not the child should be brought in at once for examination.

Subsequent visits to the hospital are made as often as each individual case requires. New

termine the best way to handle endocarditis in childhood. Our experience has shown that the treatment of endocarditis when complete remission is broken, is merely palliative. Further study leads us to believe that in a large number of instances heart disease in the adult originates in childhood. We, therefore, have put our energies into the treatment of endocarditis during the early stages. During the course of our studies many physical facts have been brought to light, one of which has already been reported by Dr. Gilbert BOSTON MED. AND SURG. JOUR., clix, No. 3, p. 55. This first report is made not because it is complete but because we feel that a definite advance has been made in the early treatment of endocarditis in children. We feel that in such treatment lies the only hope of complete cure; and while we realize that we have been starting the problem for too short a time to make any authoritative statement, we feel that in many instances we have obtained permanent lasting results.—FRITZ B. TALBOT, M.D.

patients usually return in about two weeks, others once a month, and the convalescents only three or four times a year. Too frequent visits to the hospital defeat their own end by exciting and overtiring the patient; if they are allowed to wait too long between visits they are likely gradually to break free from restraint, to develop an unexpected endocarditis, or on the other hand even to overdo the bed treatment; each case must be handled as an individual and it is just here that the help of the social worker is invaluable.

After the chorea or rheumatism is over and the pulse and temperature have been normal for several weeks, we begin to allow them to get up. There have been a few children in whom a rapid pulse persisted without other signs of endocarditis, until in despair they were allowed out of bed. Then, rather to our surprise, the rate slowed down to normal; so this possibility, of too long a stay in bed, must be kept in mind.

The process of getting the children out of bed and back to a normal life is long and slow. We begin by allowing them to move into a chair for one-half to one hour a day and report in a week either personally or through a social worker. If all goes well and the pulse rate remains within reasonable limits, the time out of bed is extended hour by hour, with some children quite rapidly, with others very slowly and with great caution, until they are up all day except for an after-dinner nap. When they are first out of bed they are kept playing quietly in the house or on the piazza; then they are allowed on the street, at first only with an older person or at the time when the other children are at school and finally are sent back to school again themselves, beginning with only one session a day so that the afternoon nap may be continued. If they are then doing well all restraint is removed and they are encouraged to lead normal lives although the great majority are still kept under observation and required to report two or three times a year.

This is our ideal standard. In practice we do not expect the impossible. Nevertheless, considering the average type of parent with whom we are dealing, our advice is surprisingly well followed. The fact that the doctor is willing to spend 10 or 20, occasionally even 30, minutes in talking with them, and the frequent friendly visits of the social worker, make an impression that was wholly lacking under the old regime with its hurried, impersonal, and half understood directions. The following figures illustrate the results we have obtained.

Bed Care. Thirty-four cases entering after March 1 were sick enough to require full time rest in bed. Seven of these were discharged from the clinic for various reasons before the completion of the treatment and five more are still in bed, which leaves 22 cases whose completed rest in bed averaged $7\frac{1}{2}$ weeks apiece.

Under Restraint. By this term is meant that the children were kept out of school or were sent

only for a half day, were not allowed to play hard, and were made to lie down for two hours a day. Fifty-three cases come under this heading, the other 7 being kept under observation, but not under restraint. Excluding 1 case that died of malignant endocarditis and 9 that were discharged before treatment was finished, we have 43 cases. Of these, 10 cases under restraint on March 1 have been kept under restraint since then for periods of from two to nine months—an average of four months. Eighteen cases still under restraint Dec. 1 have been kept under restraint for periods of from one-half to nine months, an average of three months. Fifteen cases begun and concluded between March 1 and Dec. 1, these, of course, being the lightest ones, were kept under restraint for periods of from one-half to seven months—an average of three and one-half months.

One feature of the heart clinic that must be emphasized is its necessarily close connection with other institutions and organizations dealing with such children. Reference has been made already to the ward care of severe cases at the Massachusetts General Hospital. Before they are discharged, our social worker has made everything ready for them at home and explained that their return from the hospital does not mean that they are well, but merely that they are better, and that it is still necessary to stay in bed until the doctor in the Out-Patient Department gives permission to get up. In this way we feel that their hospital stay can be somewhat shortened and yet relapses prevented.

Other children are taken care of at the Brookline Heart Hospital, and then returned again to us.

Others again, in the summer, go to Children's Island at Marblehead, where special arrangements have been made to give them bed care.

However, we feel that, except for acutely sick children, an institution is not the ideal spot. It is a question not only of relieving the immediate symptoms, but of preventing relapses. A child discharged practically well from an institution goes back to the same environment in which it became sick, and with the child appearing perfectly well it is almost impossible to persuade the parents to make any changes. However, if the child has been at home from the first, there is more chance of the necessary improvements being made. The choreic girl, for instance, will be given a bed of her own, instead of sleeping with several sisters, and the custom once started is more likely to persist. Having been in bed at home for a month or so she is more willing to keep on taking a nap and going to bed early, and there is not the sudden and exciting total change of environment that so frequently upsets a choreic child on returning home from a hospital. Similar arguments apply to cases of early chronic endocarditis, and even to children who have had rheumatism without cardiac involvement.

Hence, when for one reason or another, home

treatment was unsuccessful, we adopted the expedient of boarding the sick children out in other families. We started with one or two rather exceptional cases and have found them to do so well that we are sending others. There is one girl in particular who has been in the ward several times with chorea and has always relapsed on returning home, who is now doing well boarded out and will probably soon be able to go back to school.

So far we have worked with four different organizations, The Children's Aid Society, The Children's Mission, The Children's Friend Society and The Society for the Care of Girls, each of which has taken one or more of our patients and assumed responsibility for them while they are away from home; and without their assistance we should be totally unable to carry out a method which is proving of the greatest value.

At the time the figures were collected for this paper the heart clinic had been in operation just nine months—from March 1 to December 1, 1914,—and hence this is merely a preliminary report.

A total of 60 cases have been treated: 20 of these were old cases that still needed supervision, and were taken on in a body on March 1. Twenty-three cases have been discharged during the nine months, leaving 37 cases still under supervision.

Etiology. Thirty-two of the 60 cases, or 53.3%, were choreic at the time of admission, and 10 more gave a history of choreic attacks in the past, making a total of 42 cases, or 70%, in which chorea played a part. Nine cases, 15%, were rheumatic on admission and 19 more gave a history of joint or muscle involvement in the past that was interpreted as of rheumatic origin, making a total of 28 cases, 46.6%, which were classed as rheumatic. Thirteen cases, or 21.6%, gave a history of both rheumatism and chorea, and in two of these both diseases were active at the same time while the patient was under our observation. In only one patient was there no evidence of either rheumatism or of chorea, he being a boy who was under observation for a suspected endocarditis following tonsillectomy.

We have endeavored to classify the cases according to the condition of the heart at the time of admission and again at discharge, but have found it exceedingly difficult because of the nature of the disease. It is fairly easy to say in a given case, where the heart shows no enlargement, no increase in rate or change in rhythm beyond a simple sinus arrhythmia, where the sounds are of good quality and there is no murmur, that that patient has no endocarditis. The other extreme is also comparatively simple, but how are we to classify the intermediate stages? It is virtually impossible by any of our present means. Hence, for the purposes of this paper only, we have made a large group with the heading "heart suspicious" and included in it those cases which showed some but not all the signs of acute endocarditis. The following figures there-

fore, while suggestive, are not to be relied on absolutely, and for the ultimate test of whether our efforts are worth while we must wait several years to compare the incidence of chronic endocarditis in our clinic with similar cases which have not had the same intensive treatment.

Nineteen cases had normal hearts when first seen. Sixteen of these are still normal; 2 are classed as "suspicious" and are still under treatment; 1 has a definite endocarditis and is still under treatment.

Twenty-five were called "suspicious" on admission; 17 are now normal; 6 "suspicious"; and 2 have a definite though slight chronic endocarditis.

Adding these two groups together, *i.e.* all that did not have a definite endocarditis when they were first seen, we have 44 cases, only 3 of which (6.8%) have developed a definite endocarditis while under our care. Eight more (18%) are classed as "suspicious."

We now come to the 16 cases which did have a definite endocarditis when they were first seen. Eleven of these were chronic from the first or had a slight acute endocarditis on an old chronic lesion; none of these have grown worse while under observation. The 5 remaining cases were acute from the start; one was the malignant type, developed a progressive carditis, and died; another, in spite of good home care and strict rest in bed, ran a persistent high pulse with occasional fever, and now has a severe chronic mitral regurgitation; two give evidence of slight perfectly compensated mitral regurgitation; and one, which in the ward was thought to have adhesive pericarditis now shows no evidence of abnormality by physical examination or by electrocardiogram.

To sum up: we have treated 60 cases of chorea, rheumatism or early endocarditis for varying lengths of time from ten days to nine months. Eleven had chronic endocarditis when first seen and were carried through their chorea or rheumatism without further cardiac involvement. For the purpose of the following table, *i.e.* the determination of the incidence of fresh endocarditis while under efficient treatment, these cases can justifiably be classed as "normal hearts."

1 has died of malignant endocarditis	3.33%	24.99%
1 is a hopeless cardiac cripple.....	8.33	
5 developed chronic endocarditis but are well compensated.....	8.33%	
8 have "suspicious" endocarditis....	13.33%	
34 have normal hearts.....	56.66%	
11 have chronic endocarditis antero- dating their admission to heart clinic	18.33%	74.99%

Thus 75% came through their attack without acute endocarditis, 13% more are still in the suspicious class, and only 12% have received permanent cardiac damage. However it must be remembered that these are merely provisional figures obtained from a nine months' study, that they deal usually with but a single attack, and

that some of the cases that we now consider to have normal hearts may later show cicatrical changes that have escaped observation.

Relapses. A total of 9 patients came down with a relapse while under treatment and in only 2 of these can it truthfully be said that they were not following our directions. The other 7 were following the instructions fairly well and had evidently been allowed to go ahead too fast. Two of the relapses were distinctly initiated by tonsillectomy, one a chorea, the other an arthritis. We also have records of another case before this clinic was started, where a severe relapse of chorea followed immediately after the extraction of several teeth. On the other hand, tonsils were removed in three other cases with beneficial results. Our present opinion is that tonsils and adenoids should be removed and teeth treated by a dentist in all cases of "rheumatic infection" which give a history of repeated sore throats, or head colds, or of toothaches, or in which anything abnormal can be discovered on examination; but that treatment should preferably be postponed until the child is over his chorea or rheumatism. If, however, the disease is at a standstill or growing worse in spite of good treatment, we advise immediate interference. The wholesale removal of tonsils and adenoids in the course of or immediately following chorea or rheumatism we regard as unnecessary or even dangerous.

The following figures may be of interest as showing the relatively small number of children which had to be sent to an institution.

Ward Care. Twelve cases were admitted to our wards for periods of two weeks to four months.

Brookline Heart Hospital. Three cases were sent to this special home; 1 was discharged in two weeks because of vaginitis; the other 2 are still there after two and three months respectively.

Children's Island. Two cases were sent to Marblehead; 1 returned after one month with a severe relapse, and was admitted to our ward; the other stayed three months and was greatly benefited.

Home Care. One patient is in the hospital. The others have all been taken care of at home for periods varying between ten days and nine months, and 48 of the 60 children have been treated at home from beginning to end.

Boarding Out. Up to December 1 only 3 patients had been boarded out, for periods of two and one-half to five months. They have done very well, and we feel that it is a method to be used more and more in persistent choreas of moderate or slight severity, where the home surroundings are a factor in keeping up the disease. However, it is not to be used as a temporary measure, but only on the distinct understanding that the child is to stay away for several months after he is well; otherwise he is only too apt to relapse. Also it is necessary that the

boarding home be a good one with few or no children, and that the woman be intelligent and under close supervision.

In conclusion we consider that we have shown that it is possible by means of a special clinic and a full time social worker to give efficient treatment for early or threatened endocarditis to patients of the out-patient class. According to the estimates in the literature the incidence of endocarditis in the "rheumatic infections" varies from 40%-80%; in our series so far it is certainly not over 25%, and perhaps less. Whether these results are permanent or not it is impossible to say at present, although we hope to supplement this preliminary report a few years hence with an account of the end results of these cases.



SOCIAL PROBLEMS INVOLVED IN THE TREATMENT OF CHILDREN WITH HEART DISEASE, FROM THE POINT OF VIEW OF AN OUT-PATIENT DEPARTMENT.

BY CLARA M. WELSH, BOSTON.

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THERE has always been an attitude of pessimism among physicians with regard to the prognosis of heart disease in children dependent upon dispensaries and hospital clinics for their medical treatment. This has not been wholly because of the nature of the disease, for a great many people lead practically normal lives though suffering from a heart lesion. Neither is it because the children receive inferior medical treatment in dispensaries and out-patient clinics, for the physicians of the poor are the physicians of the rich in a great many instances, and the child who attends a hospital clinic is treated by the same physician as his up-town brother.

Having made a survey of the types of cases treated in the Children's Clinic for three months, and having found that the third largest group treated in the clinic was suffering from form of a rheumatic infection, or its results, Dr. Talbot attempted to analyze this attitude of pessimism amongst physicians and arrived at the following conclusions. Heart disease is a social disease, and needs social treatment. The child and his family must be educated, his environment must be altered, and adapted to his limitations. He must be kept under supervision for a long period of time, not merely until he has recovered from the acute symptoms which bother him, and which have made his family recognize the immediate necessity of a physician's care.

And so, in January, 1911, a social worker was employed to help in the treatment of this large and interesting group of children. Her problem has been to make a social investigation of all children falling within the rheumatic group, *i.e.*, endocarditis (chronic and acute) chorea, and rheumatic fever; to bring to the physicians the information obtained from this investigation, which had bearing upon the child's treatment; to form, with him, a plan for treatment suited to the individual case; to see that the child's parents were instructed and educated regarding his condition; to help adapt his environment to his needs, in so far as possible; and to see that his connection with the hospital was not lost, but that he reported for observation as often as necessary.

The observations recorded in this paper cover the experience of these four years, in working with 264 children. Some have been under supervision during the whole time, and the group has been constantly added to; 8 have died; 2 have been placed in homes for incurables; 23 are having bed care; 32 are still under restraint; 120 are leading practically normal lives, happier and healthier for the knowledge of how to live in spite of their handicap, and how to prevent it from becoming more serious; 10 have been graduated to the adult medical clinics; 69 have become inactive.*

It has been the custom in the Children's Clinic for the physicians to automatically refer all cases of heart disease to the social worker. If the patient is to go to the wards for treatment she makes her investigation while he is there, and has a plan for convalescence ready on his discharge. If he is to be treated in the outpatient department only, he is given an appointment to return. Before it is time for him to return the social worker has made the investigation which is of benefit in making further plans for the patient's treatment.

It is absolutely essential for the social worker to have as much medical knowledge about the child's condition as the physician can give her. It is not sufficient for her to know that the child has a "damaged heart." She must know something of the degree of damage, how much the function is impaired, if possible, whether any acute process is going on, and the exact amount of rest and exercise which the physician prescribes. The whole future of the child may depend upon the exactness of her knowledge, and the accuracy and vividness with which she interprets it to the child's family. It is her responsibility to arrange for these directions to be carried out so far as possible, and her report of the child's behavior between visits serves as a partial basis for further treatment and instructions.

From the point of view of treatment, social as well as medical, heart cases divide themselves into two groups, acute and chronic. A great

many of the cases in the acute group in time pass into the chronic group. Our method of treatment of acute cases, absolute rest in bed for a long period of time, involves many social problems. Few hospitals for treating acute illness can keep patients suffering from acute endocarditis for as long a time as bed care is required. Obviously, some provision must be made for these children, outside the hospital, if treatment is to be lasting and effective.

Since the beginning of our work we have cared for many of these children in their homes. At first, owing to bad home conditions, or the children being unruly, we felt the need of a convalescent hospital where patients could receive bed care for as long a time as necessary. Such a hospital was opened in December, 1911, and continued until March, 1914. During that time we cared for 54 children at an expense of \$2,696.81. The parents of these children paid what they could, and the balance was raised from private funds. Our accounts show that about half of the total amount had to be raised from others than parents.

The group of children cared for at this convalescent hospital makes an interesting study from a medical point of view. There are also some interesting social facts gathered from a study of the individual cases. All of the patients, with a very few exceptions, went from the Massachusetts General Hospital, and were sent, because, in the opinion of the physician and social worker, they could not be cared for at home under existing conditions. The social worker kept in touch with the progress of the children while they were there. They were not discharged without her knowledge and approval, and were under her supervision when returned to their homes.

Some of the social worker's most difficult problems have come at this point. The child has forgotten how to adjust itself to family life, for a long period spent in an institution, however home-like, sometimes destroys relationships which may have to be painfully rebuilt. It seems practically impossible for a mother or father of somewhat limited experience and knowledge, to understand that this child, who is returned to them apparently looking and feeling so well, must do and refrain from doing, certain things, in order to continue looking and feeling well. The parents have not experienced the long, tedious period of bringing their child back to health. The child himself forgets quickly, and the process of educating parents and adjusting child to environment must begin anew.

Probably a greater improvement is made in a short time by this method where the conditions can be absolutely controlled, than when an effort is made to educate parents to care for a child at home. But what happens in the long run? Often it is necessary to sacrifice the child and allow the unbelieving parents to go their own way, learning by experience when the child has a relapse, before the process of education can

* Referred to other hospitals, discharged because of lack of cooperation. Moved from town, or lost track of.

really begin to take root. This method surely involves much waste. The expense is great, and little can be accomplished.

After two years of experiment with convalescent hospital care, we began to see that the few children whom we had been able to care for adequately at home, did better in the long run than those who were sent to the convalescent hospital. There were fewer relapses, the treatment had more continuity when relapses came and the parents were prepared to meet and care for these as they occurred.

The number of cases under intensive supervision had to be limited because of pressure of work on the part of the social worker. We found that at the same expense required to care for ten children in the convalescent home, we could employ a visitor who could supervise from 30 to 40 children in their own homes, visiting as frequently as required, and making the necessary social adjustments in the family. In April, 1913, a committee had been formed to raise money for helping to care for children at the convalescent home. This committee generously offered to use their funds to pay a visitor's salary, and to continue as an advisory body to whom she should report progress with the children under her supervision. The results of nine months of this work are reported on elsewhere by Dr. Richard Eustis.

This visitor has under her supervision only children with acute heart disease, or those in danger of developing it through chorea or rheumatism. If the home is unfit, it is her business to find out the causes of this unfitness, and if possible, to remedy them. Poverty alone is no reason for removing a child from its parents. It is better to aid the family to keep the child, than to aid them by removing him.

The process of educating more or less ignorant parents, and a young, heedless child, is a slow, patience-demanding one. But much can be done by frequent visiting, explaining and persuading, on the part of a hopeful, persistent and resourceful person. She must understand children and must have at her disposal all kinds of ways and means for keeping the child happy and contented in bed. She must be able to teach the parents how to keep him comfortable there, and to realize the importance of following the doctor's instructions to the letter. The economic advice of, "Follow the doctor's instructions, and have the child improve rapidly. Don't follow them, and have a sick child for a long time," usually appeals to parents.

There are certain medical facts which the visitor must know, certain symptoms which she must be able to recognize and report to the physician. But her function is that of a visiting teacher, rather than that of a visiting nurse. She must have a knowledge of the resources of the community, charitable, social and educational, in order that the needs of her families may be recognized and met.

I know of only five reasons which make it justifiable and necessary to care for a child with heart disease outside of his home. First, when there is present a condition needing constant medical and nursing care. The solution here is, of course, hospital care. Second, when other illness in the family, usually that of the mother, makes home care impracticable. Third, when there is a large family of young children in a small home, so that anything like rest and quiet is impossible to attain. Fourth, when there is persisting ignorance and lack of coöperation on the part of parents. Fifth, actual criminal neglect on the part of parents who are able to bear the burden.

The remedy for most of the cases falling within groups two, three and four, is suggested by coöperation with our child-placing agencies. If a child must be cared for outside of his home, the next best arrangement is a foster home, wisely chosen as to the needs of the individual child and carefully supervised. As this means of disposal necessitates an outlay of considerable effort and money, the prognoses of the various cases must be carefully considered, and regarded as investments. Are we reasonably sure of getting lasting results? Is the child teachable? Can the home situation be bettered so that all the good work may not be lost when the patient returns home? A good many cases under the fourth heading fail to measure up to these standards, because of poor stock, incapable of being taught or helped. There is really little hope of doing any lasting good for these—they are social incurables. A child-placing agency is quite justified in refusing to accept the burden of a child whose heart is hopelessly crippled, or whose family is socially incurable. If, for humane reasons, action must be taken and the family are willing to give the child up, guardianship should be obtained for a number of years, and the burden should be one for public rather than for private support.

Group five has caused us some of our hardest struggles, and some of our most bitter disappointments. It seems nothing short of criminal that neglect on the part of the parents may spoil a child's every chance for efficient manhood or womanhood. Yet this happens in a good many cases and we are usually powerless to prevent it.

A young Syrian boy of ten years came into our care in 1912. His father, a man of intelligence and thrift, had died a year before. His mother was ignorant, shiftless and powerless to control her five children, who were rapidly becoming delinquent. A pension from the city and state enabled her to keep her home within the congested part of the city, from which she refused to move.

The boy, a bright, promising and responsive little fellow, recovered from his attack of acute rheumatic fever and acute endocarditis but was left a mitral lesion. After six months of care and study at the convalescent home it was thought economic and advisable to place him in a foster home until he should become trained in how to care for himself, and until his heart could get back as much of its original

efficiency as possible. By the fall of 1914 he had improved remarkably in every way and with the exception of violent exercise he was allowed practically all the activities of a normal boy. His foster parents and teachers spoke highly of his promising ability. However, his approaching earning capacity appealed to his mother. In spite of all the persuasion that could be brought to bear and notwithstanding repeated assurances on our part that the child had been made and kept well only by the most careful attention to his hygiene and exercise, she took him to her crowded and unsanitary home.

In four weeks he suffered an attack of rheumatic fever with new endocarditis. His mother took him to a physician who, having seen him once in his office, said he would do well at home but must be flat on his back for six months! The physician later told the social worker, who inquired concerning the boy, that in his opinion the heart was hopelessly crippled; that he would never amount to anything and that the mother's rights should be respected!

Which medical opinion should have more weight? That of the doctor who had watched the boy carefully for two years and knew the capacity of his heart, or that of the doctor who had seen him only once? And which plan respected the mother's "rights" more, the one which was made to watch her boy and help him to grow to self-supporting manhood, or the one which allowed her in her foolish ignorance to spoil the boy's future usefulness?

The Massachusetts law regarding the physical neglect of children is useless in such cases. The term "neglect" may be interpreted to mean neglected medical treatment, which in turn may be interpreted broadly. But the court is powerless to act against parents who refuse medical treatment for their children, if any physician will appear in court and testify that the treatment is not necessary.

The lesson to be drawn from this and similar cases is, that it is much safer to procure guardianship at the outset of such cases as need a long period of treatment away from home on account of neglect.

In considering children with cardiac disease, the school problem is a great one. There is so much loss of time that they fall behind children of their age and are seriously handicapped. A comprehensive scheme provides for teaching these children in their homes and for close co-operation with teachers and school nurses as soon as they are able to return to school. Teachers are often glad to advise the visitor about home lessons. The problem would be much simpler if more of the schools had elevators. Still some plan can usually be made with the help of interested and resourceful teachers. When there is no class of the required grade on the first floor, it is sometimes possible to transfer a child to another building, where a longer walk but no stair climbing may be involved.

In Boston there are ungraded classes which are small and which provide more individual teaching than is possible in grades of usual size. Such a class on the ground floor is a splendid

place for a child who has lost a great deal of time because of heart disease. Children may attend for a half day only, when just returning to school after illness; they may be excused from exercises; they may have special supervision at recess and they may pass in and out of school before or after the files.

Instruction and amusements for the child who is acutely ill, must be of the simplest kind and must be carefully supervised, to prevent them from making the patient tired or nervous. As much harm can be done, however, by taking all occupation away from a child as by allowing him to overdo. Oftentimes simple hand work is of great benefit to choreic patients. I have seen children with obstinate cases of chorea, particularly of the hands improve and recover when knitting was given them. Scrapbook making, simple weaving, knitting and bead work, modeling with plasticine, painting and coloring of pictures, cutting out of paper dolls and doll house furniture are all easily done in bed. An attempt should be made to provide work which has a purpose, as it interests the patient longer than a mere toy. The game "Meccano" is very popular with older children, also we always have a lending library on hand for their use.

The child and his parents should early be taught the possibility of permanent handicap and should be made to feel that the very best possible education is going to be of untold advantage to him. Unskilled work usually involves physical strain, and is consequently a great danger, which should not be risked. Every child suffering with heart trouble should be given the benefit of vocational training.

It is our policy to "graduate" children at 13 or 14 years of age to the adult medical clinics, where they are supervised medically by a special physician and socially by the social worker in that clinic. This social worker helps to make it possible for the child to attend high school or a trade school and sees that he learns some occupation which he can safely undertake.

With such a program extensively carried out we should have fewer misfits in industry and fewer cardiac patients in our wards who do not know how to support themselves except by unskilled manual labor.

I do not think that the logical development of care for children with heart disease is along institutional lines. An institution where these children can be cared for and taught does not seem practical or necessary. Those who need institutional care for a long period of time, namely, those whose hearts have received such damage as to make them permanent invalids, are comparatively few in number. There is little to be done for them except to keep them as happy and contented as possible during their lifetime, and for them there should be provision in homes for incurables.

Emphasis should be placed where preventive work is possible, namely, on the physically and socially hopeful cases. These far outnumber

those who are unhelpable. A long time spent in an institution does not teach children with heart disease how to adapt themselves and their limitations to normal family or community life. They become a class apart like the blind and deaf. Constant association with others disabled like themselves tends to make them neurasthenic. This tendency has always to be constantly guarded against when working with children where so much emphasis must be placed on their physical disability along certain lines.

In closing I should like to suggest the outline of a program for the efficient care of children with heart disease.

1. Adequate medical treatment.
 - a. Ward treatment when necessary.
 - b. Out-patient treatment, patients to be seen always by the same physician.
 2. Adequate social treatment based upon medical treatment and following along closely with it. This should include:
 - a. Consideration of the home environment, both physical and mental.
 - b. Consideration of the school environment both physical and mental.
 - c. Consideration of suitable recreation and occupation.
 3. Supervision over a long period of time.
 4. Vocational guidance and training.
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TONSILLECTOMY AS A THERAPEUTIC MEASURE IN THE TREATMENT OF CHOREA AND ENDOCARDITIS.

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[From the Children's Medical Department, Massachusetts General Hospital.]

SINCE July, 1911, an intensive study of endocarditis in children has been carried on in the Children's Medical Department of the Massachusetts General Hospital. These patients have been under observation by the same physicians for varying lengths of time, thus allowing each physician to follow out consistently different methods of treatment. The social condition of each patient has been investigated and followed by a special worker in the social service department, whose intimate knowledge of the patient and his home conditions has been of inestimable value to the physician in prescribing and carrying out treatment.

Before the work had gone on many months it became apparent that a place must be provided for patients not sick enough to occupy a bed in a general hospital but still too sick to receive adequate treatment at home. For this purpose a

Convalescent Home of 10 beds was established, where these children could have absolute rest in bed for weeks or months, and where, when able to be up, their activities could be carefully regulated and controlled. The Convalescent Home was in operation from December, 1911, to March, 1914, and in that time 54 patients between the ages of 5 and 12 years were treated, with an average of 107 days per patient. These patients were referred from both the out-patient department and wards. All patients had an acute or chronic endocarditis or were cases of chorea, arthritis or tonsillitis in which endocarditis was suspected. Of the 54 cases, 21 had a tonsillectomy performed either before they first came under observation, or while under observation, and it is with the end results in these cases that this paper deals. These patients, with few exceptions, have reported regularly to the out-patient department since their discharge from the convalescent home.

In all but three of the 21 cases, tonsillectomy was done in the out-patient department of the Massachusetts General Hospital. In two cases, operated upon outside the hospital, the condition of the tonsils before operation is not known; in the other case the tonsils were described as "considerably enlarged." In 11 cases the tonsils were described as "large," "enlarged," "very prominent" or "prominent and ragged." In 4 cases as "slightly+," "moderate," "slightly enlarged and inflamed" or "moderately enlarged." In one "buried," in one "not visible" and in one "small."

Of the 21 cases 6 gave a history of previous tonsillitis. Five patients gave a history of previous arthritis; since tonsillectomy 3 patients have been free from arthritis, while 2 patients have had subsequent attacks, one 2 months, the other 27 months, after operation.

A history of chorea previous to operation was given in 9 cases. After the removal of the tonsils 8 of these cases had from one to four attacks of chorea. There were 4 patients who have had from one to four attacks of chorea since the removal of the tonsils with no history of previous attacks. The one patient who has been free from chorea since the removal of the tonsils is a boy, aged, when first seen in March, 1913, seven years. At this time he had chorea with a heart of normal size, but with a loud functional murmur. He was in the ward one week and home in bed 11 weeks. From June 6, 1913, to October 16, 1913, he was in the convalescent home, and while there showed no sign of chorea. Examination of the heart on discharge showed the apex beat in the fourth space in the nipple line, the left border of dulness corresponding, 6.5 cm. to the left of the median line. Right border 2.5 cm. to the right of the median line. There was a rough systolic murmur at the pulmonic area, diminishing in intensity toward the apex but audible there, not heard in the axilla. On December 31, 1913, the tonsils and adenoids were removed, at which time there was slight chorea.

On April 25, 1914, a faint apical systolic murmur was heard for the first time. On November 21, 1914, the record states there is "probably a very slight mitral leak," with no demonstrable hypertrophy. Up to the present time the boy has had no more chorea, is under no restraint and is free from symptoms.

Of the 21 cases, 12 cases were known to have a definite endocarditis before tonsillectomy. One patient had an acute arthritis with a questionable endocarditis when first seen, no history of chorea or tonsillitis. Six weeks before operation the heart was recorded as normal and has remained so. There have been no subsequent attacks of arthritis nor chorea. Of the remaining 8 cases it is impossible to positively prove the absence of endocarditis before operation, since it was not at that time, as now, the routine to examine, in the Children's Department, the heart and lungs of each patient the morning of operation.

At the present time 17 cases show a chronic endocarditis, and of these 12 were known to have had endocarditis before operation. Three patients have had a fresh endocarditis or an acute exacerbation of a chronic endocarditis since operation, and in two patients the diagnosis is probable but not certain. Of these five cases, endocarditis was definitely known to be present before operation in two. One known and one suspected case of acute endocarditis now have normal hearts. Since operation one patient has been discharged from the ward with the diagnosis of subacute endocarditis.

It has generally been assumed that tonsillec-

tomy, even if it offered no benefit, could do no harm, excepting the immediate danger of the operation. This statement is questioned by two cases in this series. One patient had chorea 12 months before operation, with no history of arthritis, tonsillitis or endocarditis. Two weeks after the operation she had her second attack of chorea, complicated by an endocarditis, probably acute. The other case gave no history of chorea, arthritis or tonsillitis before operation. The heart was examined three weeks before operation and found normal. Five days after operation the patient had chorea and an acute endocarditis.

The present condition of 3 patients is unknown. Of the remaining 18 patients, 12 are well, 2 have no endocarditis, 10 still have an endocardial murmur, and, with one exception, show slight cardiac hypertrophy. These patients are well in so far as they have no symptoms and enjoy all the normal activities of childhood without restraint. The physical activities of 4 patients are still more or less restrained. One patient is now having her third attack of chorea. Another patient, when last seen in November, 1914, was having her fourth attack of chorea and up to this time has had no endocarditis.

Definite conclusions cannot be drawn from so few cases. The occurrence of chorea after tonsillectomy in 12 out of 21 cases strongly suggests, however, that removal of the tonsils does not offer the protection against chorea, and the always present possibility of endocarditis, that many have heretofore believed.

BEFORE TONSILS WERE REMOVED.

	Chorea.	Arthritis.	Tonsillitis.	Endocarditis.	CONDITION OF TONSILS.
1.	0	0	0	?	"Large."
2.	0	0	0	+	?
3.	+	0	+	+	"Very prominent."
4.	0	0	0	?	"Slightly +."
5.	0	0	0	?	"Moderate."
6.	0	0	0	+	"Prominent and ragged."
7.	+	0	+	+	"Large."
8.	+	0	0	+	"Sl. enlarged and inflamed."
9.	0	0	0	?	"Large."
10.	0	0	+	+	"Enlarged."
11.	+	0	0	?	"Buried."
12.	0	+	+	+	"Enlarged."
13.	+	0	0	+	"Large."
14.	0	0	0	?	?
15.	+	0	0	?	"Large."
16.	0	+	0	?	"Large."
17.	0	+	+	+	"Prominent and ragged."
18.	+	0	0	+	"Small."
19.	+	0	0	?	"Not visible."
20.	0	+	0	+	"Moderately enlarged."
21.	+	+	+	+	"Considerably enlarged."

AFTER TONSILS WERE REMOVED.

	Chorea.	Arthritis.	Acute.	Subacute.	Chronic.
	0	0	0	+	+
1 attack	0	0	0	0	+
2 attacks	0	0	0	0	+
0	0	0	0	0	+
2 attacks	0	+	0	0	0
2 attacks	0	?	0	0	+
1 attack	0	0	0	0	+
3 attacks	0	0	0	0	+
0	0	+	0	0	+
0	0	0	0	0	+
3 attacks	0	0	0	0	?
0	0	0	0	0	+
0	0	0	0	0	+
1 attack	0	0	0	0	+
4 attacks	0	0	0	0	+
0	0	0	0	0	+
0	0	0	0	0	0
1 attack	0	+	+	0	+
0	0	0	0	0	+
4 attacks	0	?	0	0	+
0	0	0	0	0	0
0	0	0	0	0	+
3 attacks	+	0	0	0	+

12 cases had chorea after removal of tonsils.

9 " " " before removal of tonsils.

8 " " " both before and after removal of tonsils.

4 " " " after but not before removal of tonsils.

1 " " " before but not after removal of tonsils.

Medical Progress.

REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

FATAL POISONING FROM RESORCIN APPLICATIONS.

FEW cases of severe constitutional poisoning from the outward application of resorcin are on record. In one of the reported cases the patient was a man of 29, who had been treated with a 50% resorcin paste for a very extensive lupus vulgaris; another, a boy of 19, had rubbed in a 15% resorcin ointment over a large surface of the skin.

Boeck's¹ case was that of a poorly nourished boy of 16, who had been affected by a very extensive lupus vulgaris from his third year. The whole of the left lower extremity, and the greater part of the left upper extremity was covered with numerous closely aggregated lupus nodules. He was treated at first by the Finsen light, with experimental applications of a 27% resorcin paste on the left arm, which caused a certain amount of pain and discomfort. Later a 25% resorcin paste was applied to the greater part of the left calf, where the skin was covered with intact epithelium. The application was made at about 10:30. He began to be restless half an hour after the application had been made, and to complain of severe pain, but gradually became quiet. He was found, 1½ hours after the application, unconscious, cyanotic, with spasmodic twitching of the right arm, pulse 120, temperature 37.8°. Shortly afterward he developed convulsive movements of the face, right arm and leg, and later the left side of the body. The pulse became 150, the respiration frequent, ceasing at times for a minute. The pupils were at first much dilated, later contracted. The convulsive attack lasted the whole afternoon, ceasing towards night, and was followed by death in the early evening. At the autopsy the chief finding was a very pronounced edema of the brain. There was a widespread glandular tuberculosis, and tubercular foci in the apices of both lungs.

There could be no question that death was caused by poisoning from resorcin. The symptoms of such poisoning are very characteristic, consisting of quickly appearing restlessness and wandering, followed by cyanosis, coma, and severe convulsions. Ordinarily the patient recovers quickly, awaking almost perfectly well.

The result in this case was most unexpected, as Boeck had used resorcin in cases of lupus during a good many years in even higher percentages than in the present case. In this case, to be sure, somewhat larger surfaces than usual were treated, but these surfaces were everywhere covered with a thick, intact, horny layer, which therefore was not able to prevent the poisoning. This fact was recorded also by Andeer, who found by his experiments that, although resorcin

intoxication did not occur in the presence of a completely sound skin, an intact epidermis afforded no security against poisoning in the presence of an underlying morbidly affected corium. Resorcin is a dioxybenzol, and in any case the substances that are formed by its contact with the skin must be of very transient nature, as symptoms of poisoning may occur a quarter of an hour after its application.

On account of this case Boeck advises that in the future resorcin be not employed in large doses over considerable surfaces. In the treatment of lupus vulgaris he considers that we have even better and more effective chemical agents in pyrogallol and salicylic acid. He had previously employed resorcin in such cases for the reason that he considered it the mildest application. He considers resorcin more effective against lupus of the mucous membranes, when not extensive, than any other chemical or physical agent. In lupus of the nasal cavity he uses a resorcin paste, made up of equal parts of resorcin, talcum and vaseline, applied twice daily for a week.

TUBERCULOSIS TYPES.

Lipschütz², in a study of the recognition and significance of the several types of tubercle bacilli in the clinically different forms of cutaneous tuberculosis, comes to the following conclusions:—

1. The different varieties of tubercle bacilli,—human, bovine, and gallinaceous, occur in man as the cause of the different varieties of tuberculosis of the skin.

2. Mutual infection between men and animals is possible; hence prophylaxis should deal with fighting not only human, but bovine and gallinaceous tuberculosis.

3. In by far the greater number of all hitherto studied cases of cutaneous tuberculosis, the human type has been recognized as the cause.

4. The bovine type occurs regularly in tuberculosis verrucosa cutis (Riehl-Paltauf), which is therefore to be defined as a true inoculation-tuberculosis with bovine bacilli. This inoculation infection remains almost always localized; it progresses in very exceptional cases to glandular swellings and lymphangitis.

5. While verruca necrogenica ("anatomical wart") is probably, contrary to tuberculosis verrucosa, an inoculation-tuberculosis with human bacilli. Lupus vulgaris must be regarded as caused both by the human and bovine type, much more frequently by the former. Contrary to the belief of older writers, lupus vulgaris is a bovine skin tuberculosis in only a small percentage of all cases.

6. The significance of the gallinaceous type in the genesis of rare forms of cutaneous tuberculosis is not to be underestimated. In case of failure of experimental inoculations in guinea pigs, the diagnosis of tuberculosis should not be

at once rejected, but the possibility of a gallinaceous tuberculosis be suspected, and inoculation experiments attempted on fowls.

7. The following characteristics of gallinaceous tuberculosis of man may be enumerated: the occurrence of bacilli in very great numbers, their occurrence almost exclusively within cells, and tissue changes which differ markedly both clinically and microscopically from the typical appearances of ordinary tuberculosis.

TREATMENT OF X-RAY BURNS.

Bogrow² of the dermatological clinic of Moscow remarks that dermatitis from x-rays is comparatively seldom seen nowadays, since our knowledge of their properties has caused the introduction of various precautionary measures. The cases that are on record attest the obstinacy that these lesions offer to any of the conservative measures of healing. In fact, the treatment of these burns is one of the most thankless tasks of the dermatologist, as the degenerative conditions produced in the tissues by the rays can never be repaired.

The therapeutic measures indicated in reactions from the x-rays depend on the intensity of this reaction. In case of a simple Roentgen erythema, cold compresses of lead water may be sufficient, or warm boracic acid applications, soothing ointments and powders. Cocaine, orthoform, etc., have been said to cause increased inflammation and necrosis of the tissues. Injections of morphia are the best means of relief in the case of intense pain. The ulcers caused by the rays are most resistant to treatment, on account of the deep vessel changes and the danger of necrosis of the bone, and the resulting scars often break down.

According to Hagar all methods of treating x-ray burns may be divided into conservative and surgical. In the first category belong warm compresses with substances that have an antiseptic action, such as sublimate, lead water, peroxide of hydrogen, etc. Kollecker obtained good results with a one per cent. solution of creolin. For hastening the process of granulations and epithelial regeneration the ointment of red oxide of mercury, a ten per cent. carbolic oil, an eight per cent. ointment of Scharlach R, have been recommended. Of physical methods, compression by bandages and by Bier's procedure, exposure to electric lamps and radiotherapy have been advised; also, exposure to the sun after treatment with eosin, the Finsen treatment, the galvano-cautery, and carbon dioxide snow. In only a small number of these cases, however, have these procedures proved of marked effect. Surgical intervention was indicated by attacks of pain and fever. In most instances radical operations, consisting of excision of the ulcerated portions, followed by a plastic, have been resorted to.

Roentgen ray cancer can almost always be removed by operative means. Pre-cancerous

keratoses are treated with liquid air, or carbon-dioxide snow. Some of the latter heal by application of nitric acid, or after acute infections.

Bogrow reports the following case treated by the Pfannenstil method. It was that of a woman of 58, who presented a large painful ulcer in the left hypochondrium, caused by the application of x-rays for internal treatment. After some preliminary trial of other forms of treatment, it was decided to resort to Pfannenstil's method. The principle of this is the generation of nascent iodine in the tissues, effected by the internal administration of iodide of sodium, combined with the local treatment of the affected portions with peroxide of hydrogen. The only contra-indication to this method is idiosyncrasy to iodine. In the case reported, the x-ray ulcer, that had shown no sign of healing for five months, began to "clean up" immediately after this method was employed, and to become covered with epidermis. This improvement was interrupted after four months by stopping the treatment, but on its resumption the ulcer was completely healed, with a simultaneous disappearance of the pain. The scar that had been previously hyperemic, became paler. The healing occupied seven months from the beginning of the treatment. Inasmuch as the time of healing of an x-ray ulcer is very long ordinarily, extending sometimes over a period of years, the result of treatment in this case must be considered as particularly favorable.

WAR APHORISMS OF A DERMATOLOGIST.

Unna has been sending a series of short articles with the above heading to the attenuated *Berliner Klinische Wochenschrift*. We quote the topics touched on in the issues of this current year, numbered 9, 12, 14, and 18.

1. *Furuncle*. Field surgeons in the present war have told him that the old way of treating boils, by means of a crucial incision, still obtains. As bacteriology has taught that furuncles are due to the penetration of cocci into the hair follicles, it is essential that the lesion be incised in the centre by a perpendicular stab. He recommends his "mikrobrenner" as the best instrument to use, next the finest point of the Paquelin cautery, or a sharply pointed stout needle that has been passed through the flame of a spirit lamp. By this procedure pain and feeling of tension cease at once, and the part should be painless on pressure. The advantages of this method over a crucial incision are that the foci of cocci are disinfected *in situ*, that it destroys these alone and not the contiguous skin, that the pain is instantly relieved and that it leaves no scar.

2. *Furunculosis*. In the field, where baths, soap, and most of the approved methods of treating furunculosis are impossible, the methodical cauterization of all the individual furuncles is the best treatment. When this is not practicable, Unna recommends a paste of kaolin, ich-

thol and glycerine, in the proportion of 20, 10, and 5, covered by an impermeable dressing. Failing these means, or when there is much irritation, a paste of sulphur, zinc, carbonate of calcium and glycerine may be substituted. A soft mercurial plaster may also be improvised and used with good effect.

3. *Axillary Abscesses.* Surgeons in the field often meet with furuncular inflammations in the axillæ in strong healthy subjects, occurring, especially after prolonged sweating. They differ from furuncles in so marked a degree clinically that other organisms than those that cause furuncles must be active. They begin as round nodules in the corium, which increase slowly, accompanied by much inflammation and tension, and become finally soft, fluctuating abscesses which evacuate purulent matter, but no necrotic plugs, as in furuncle, and do not heal spontaneously, like the latter. They recur readily, during months and years, with remissions in the winter, but always locally, in the axillæ. They never cause erysipelas, sepsis, or metastatic abscesses. The treatment is the same as that of furuncles.

4. *Weeping Eczema.* Moist affections of the skin, if of any extent, render the subject unfit for service, especially if the customary bandaging is employed. Better are the absorbent drying pastes, of which a good one for the field is composed of sulphur 10, carbonate of calcium 10, zinc oxide ointment 80. This should be employed frequently, but in small quantity. Believing as he does, that eczema is caused by cocci, Unna declares that boric acid, and antiseptic applications in general are powerless against this affection. Drying and reducing agents, such as sulphur, zinc oxide and chalk, are indicated.

5. *Dry Eczema.* For the yellowish, greasy, scaling spots of seborrheic eczema of breast, abdomen, neck and arms, the above zinc-sulphur-chalk-paste is indicated. Callous eczemas require reducing agents. Hebra's ointment is valuable, and salicylic acid and tar are useful adjuvants. Ichthyol, resorcin, and pyrogallol cannot usually be supplied by the field apothecary.

6. *Psoriasis.* A psoriasis, even if quite extensive, does not, in this war, debar from service, as it does not affect the general health, does not itch as a rule, and is serious only when the hands and head are affected. Treatment in the field must naturally be limited to alleviating the worst symptoms and holding the affection in check. Chrysarobin may be obtained, but it must be used cautiously to avoid risk of over-stimulation, and consequently should not be used in ointment form. Chrysarobin 2, oil terebinth 2, collodium 16, may be painted over the whole body with the exception of the head. The oil of turpentine increases the oxidation effect of the chrysarobin on the skin. A white precipitate and sulphur ointment may be used on the face.

7. *Seabies.* In the numerous cases in which the seabies is complicated by an eczema the above mentioned zinc-sulphur-chalk paste may be used

for the inflammation, to which is added from 2-5 per cent. of balsam of Peru, against the seabies. This salve is rubbed two or three times daily into all the infected places till the affection is healed. Pure balsam of Peru is not advisable on account of the high cost, the pain it causes, and its impotence against eczema and furunculosis. For pure cases of seabies Sherwell's sulphur cure is advised, the patient himself rubbing pure powdered sulphur into the places that itch, at any time, but especially during the night. The patient is ordered to rub in sulphur instead of scratching. Two or three days usually suffice for a cure.

8. *Pyoderma, Impetigo Bockhart.* Unna emphasizes the difficulty that surgeons at the front experience in overcoming this class of affections. These affections, the impetigo contagiosa of Tilbury Fox and the impetigo of Bockhart are to be separated from the class of impetiginous eczemas. All the impetigos are caused by the same yellow and white pus cocci or by streptococci. But Bockhart's impetigo is a much more serious affection than impetigo contagiosa as it contains the real pus cocci and may lead to sepsis, and to generalized cases of pyoderma. Bockhart's impetigo, as opposed to impetigo contagiosa, is a rare occurrence in times of peace. In war, it is much more common, and is fostered by the unfavorable conditions. Prophylaxis is of the utmost importance. Boils and panniculitis must be carefully treated, as they may infect the adjacent hair follicles. The treatment is the same that has been enumerated above. Thorough soap and water washing of the whole body must be employed when the patient is in a hospital, or when it is possible.

9. *Erysipelas.* Unna considers ichthyol, which was introduced by him in internal medicine and dermatology first in 1884, and in the following year recommended for erysipelas by Nussbaum, as still the only sure external means of treating this affection, but this cannot always be obtained at the front. The internal use of ammonia is recommended in cases in which it is impossible to procure ichthyol, in the following prescription:—

Ammon. Carbonici	5.0
Liq. Ammon. anisati	5.0
Aqua ad	200.0
Syr. simpl	20.0

Sig. A tablespoonful every hour or two.

MODERN DIAGNOSTIC METHODS IN SYPHILIS.

Fordyce⁴ of New York, whose opportunities for observation are unsurpassed, read a paper with the above title at a meeting of the New York Academy of Medicine, the summary of which is here copied. It may be recommended to all who have to do with syphilis.

"The Wassermann reaction is one of the most important symptoms of syphilis, the interpretation of which can come only from experience—

prolonged experience and careful comparison of laboratory results with clinical observation."

Fordyce emphasizes the importance of careful clinical training in recognizing the various stages of the disease, and declares that unless the available facilities for laboratory examinations are trustworthy, it is better to be guided by clinical experience alone than to be misled by improperly made or interpreted laboratory tests. "There is great necessity for the standardization of the technic. All modifications introduced up to the present time, have proved inferior to the original method and cannot therefore supplant it.

"A positive Wassermann is pathognomonic of a luetic infection, with the following reservations: Partial or transient complement fixation is sometimes seen in leprosy, yaws, and cachectic states, but it is obvious that, with the exception of leprosy, which is the only disease to present any perplexity in this climate, the clinical diagnosis would offer no difficulty. In the cases of leprosy which have come under my observation the reaction does not occur uniformly, some cases giving the reaction at one time and not at another, or negative and indeterminate with one antigen, while inhibition may be complete with another. An indeterminate or weakly positive reaction is of value as indication for treatment, but is of little importance for diagnosis unless as a concomitant of other symptoms, when it may in many cases be brought out by a provocative injection of salvarsan.

"In interpreting negative reactions one must bear in mind that they may occur with limited tertiary affections, in old infections with the disease limited to the central nervous system, and in women with repeated abortions, or in syphilitic children in whom the infection is remote or has been treated. Alcohol taken prior to the test will sometimes prevent the fixation of complement. Individuals who are addicted to its use should, therefore, abstain for several days before the blood is to be examined.

"In the primary period of syphilis, every effort should be made to establish a positive diagnosis. If the dark field examination is negative and the clinical picture doubtful, repeated Wassermann examinations should be made, as they are usually positive before the outbreak of the secondary rash.

"The Wassermann is positive in the secondary stage in 100% of cases, and is of value in differentiating between early syphilitic eruptions and dermatological affections which simulate them. In the latent stage it is a valuable guide to the effect of treatment. It is impossible at the moment to give the percentage of cases which will remain refractory to treatment and to say to what extent we are justified in continuing to treat such patients.

"Untreated tertiary cases with manifest symptoms give a positive reaction in from 95 to 100% of cases. The test is here of diagnostic import in differentiating luetic affections from tumors or other surgical conditions, and supplies the

etiology in cases of repeated abortions where no history of syphilis is obtainable.

"The provocative reaction is of great aid in cases with suspicious lesions and a negative reaction. It should be applied in all treated cases where the reaction has been negative for a period of a year or more, to determine if a cure has taken place. If it becomes positive, there is an indication for renewal of treatment, and if it remains negative, the provocative should be repeated within a year, following the policy of Gennerich. All patients with symptoms pointing to involvement of the central nervous system should have a lumbar puncture, as well as the latent cases with persistent positive reactions, to determine if there is a latent process in the cerebrospinal system. The puncture is of value, not only in making a differential diagnosis between various neurological diseases, but as an index of the activity of a syphilitic process and a control of the effect of treatment.

"The findings in syphilis of the nervous system are as follows: In tabes the reaction of the blood is positive in 60 to 70%. In the spinal fluid, Phase I and lymphocytosis are usually marked in about 100% of well developed cases with active manifestations. The Wassermann is positive with larger amounts of fluid, and about 20% give a reaction with 0.2 c.c. or less. In the early forms of the root-type, the serological picture may be practically negative; whether these cases will give positive findings later on, only further observation and time can tell. In the degenerative forms, where all activity has subsided, the results are negative.

"In tabo-paresis and paresis the picture is about the same, i.e., a positive reaction in the blood in about 100% of the cases; in the fluid a positive Phase I and a variable lymphocytosis with a positive Wassermann in larger amounts in 100%, and with 0.2 or less in about 95%.

"In cerebro-spinal lues the reaction in the blood is positive in 70 to 80%, Phase I is usually positive, pleocytosis is variable, complement fixation is positive in large amounts; a smaller percentage fixing with 0.2.

"In cerebrospinal arteritis the blood may or may not give a positive reaction. The findings in the fluid may all be negative, excepting the globulin reaction, unless there is an accompanying meningitis."

THE ALOPECIA OF HYPOTHYREOSIS.

Montgomery⁵ of San Francisco reports an interesting case that he considers to have been of this etiology. He remarks that a diminution or absence of the secretion of the thyroid gland is known to cause the following changes in the skin: Myxedema, roughness and dryness of the skin; yellow complexion with a rather circumscribed redness of the cheeks, called the "malar flush"; dry seborrheic coating of the scalp, constituting at times a thick crust; dryness, lack of lustre and wiriness and defluvium of the hair;

aeroparesthesias; chilly feelings of the cutaneous surface; dystrophies of the nails.

The case in question was that of a man of 41, of sedentary habits, whose hair had been thinning at the vertex and retreating from the forehead for two years before he came under observation. The scalp was covered with greasy, tightly adherent scales. It was a type of the senile seborrheic variety, as it occurs in the male.

The face of the patient was considered important, being fat, heavy, and expressionless, with a dull thick skin of a lemon-yellow color, a red nose, a flush over the malar prominences, blue ears and pallid eyes. The lips were heavy, voice husky. There was in winter a pruritus of the thighs and legs which became purpuric on scratching. The gums were swollen and the teeth loosening. The thyroid gland could not be demonstrated.

He was put on a careful diet and given five grains of thyroid extract a day, under which regimen he improved rapidly. Eight months later the hair was growing rapidly, there being a new growth in some places where the fall had been complete, as at the frontal margin of the scalp. The nose became less red, and the condition of the gums improved. He began, however, to lose in weight, so the thyroid was cut down to one and a quarter grains. He then regained his weight, his health continuing to be good, and his hair, gums and teeth to maintain their improvement.

Although myxedema, one of the most characteristic symptoms of hypothyroidism, was lacking in this case, Montgomery considers that the other symptoms were sufficient to place it in this class. The loss of weight, which was arrested on decreasing the dose of thyroid extract, is considered as additional evidence in this regard. It has been claimed that a moderate degree of thyroid inadequacy is not infrequent, and that people in middle life are often benefited by thyroid treatment, both as regards their general health, removing excessive corpulence, and promoting the growth of hair; and that these good results may be due to the actual replacement of a function that is being insufficiently discharged. This is evidently what occurred in the present case. The faulty oxygenating processes were re-established by the thyroid extract so that the digestive and blood-making functions were stimulated. The writer asserts that he had never before seen anything like the condition of the gums shown by this patient, but as it improved on taking the thyroid extract, he considers that it may legitimately be regarded as one of the phenomena of hypothyreosis.

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- 2 Lipschitz: Archiv. f. Derm. u. Syph., 120, 1914.
- 3 Bogrow: Archiv. f. Derm. u. Syph., 1914, 120.
- 4 Fordyce: New York Medical Journal, Sept. 26, 1914.
- 5 Montgomery: Journal of Cut. Dis., April, 1915.

Reports of Societies.

TRANSACTIONS OF THE THIRTIETH ANNUAL MEETING OF THE ASSOCIATION OF AMERICAN PHYSICIANS.

HELD AT WASHINGTON, D. C., MAY 11, 12 AND 13, 1915.

(Continued from page 328.)

25

"The Mechanism of Anaphylaxis and Anaphylatoxin Production." By F. G. Novy, Ann Arbor, Mich.

26

"The Relationship of Chronic Protein Intoxication in Animals to Anaphylaxis." By WARFIELD T. LOXCOPE, New York, N. Y.

In the use of foreign proteins for anaphylaxis investigations certain necrotic lesions have been noted in the liver, the kidneys and the heart muscle of experimental animals. It was thought at first that these lesions were anaphylactic in origin and that they were due to a previous sensitization; but later it was shown that they occur after a single dose of protein. The question thus arose whether the lesions were due to anaphylactic shock or to direct toxic action of the protein.

In two series of animals, one group was given repeated doses of a single protein; a second group was given one dose of mixed proteins. All of the animals in the first group were found to have the lesions in the kidneys, liver and heart muscle. Those in the second group occasionally had them. Thus it was shown that there is no difference as regards the action of different foreign proteins. The question then arose as to the time of the occurrence of the lesions. Animals were found in eight days to have developed a local sensitization as expressed by a skin reaction which could be excited at the point of inoculation. In twenty days after a single large dose of horse serum, the necrotic changes may be found in the liver, kidneys and heart muscle and at the same time the skin reaction becomes more intense. These observations tend to show that the lesions alluded to are due to anaphylaxis and not to direct toxic action of the protein.

GROUP ON INTERNAL SECRETIONS.

27

"Studies on the Relation of Hypersusceptibility and Insusceptibility Induced in Guinea pigs by the Instillation of Horse Serum into the Nose." By HENRY SEWALL and CUTHBERT POWELL, Denver, Colo.

In work reported a year ago, there appeared certain peculiarities in the course of immunological reactions which were dependent upon giving the antigen through the nose. Further observations have been made in an effort to work out the idiosyncrasies of reactions produced by this channel. A priori it appears that these matters are expressions of nature and of physiology; but most experiments begin with a surgical operation of some sort—big or little. The nasal method had been adopted in order to avoid any operative procedure and because the amount of antigen absorbed by a natural route is more nearly parallel with nature.

The method adopted was this; a guinea pig was gently held on its back and 3 minims of horse serum dropped into its nose; the procedure was repeated at intervals varying from twelve hours to twenty-four days. Forty-one guinea pigs were treated thus every other day for 6 days; in 16 days the instillation of a double dose into the nose was followed by the death of 21 of the pigs from anaphylactic shock; but 20 of the pigs lived; some of them had a hard time, some had no symptoms at all. When the serum instillation was repeated on the 24th day, still the pigs did not die and those that reacted did so less strongly; the reactions were still less marked after a third instillation, and still less after a fourth. What takes place as a result of these nasal instillations? It is taken for granted that absorption must take place; but how much of the horse serum is absorbed? Rosenau found that 1,000,001 cc. may sensitize a guinea pig; it may be assumed that about 0.000,001 cc. was absorbed in these pigs, at any rate after repeated instillations, each did something to the pigs. Two instillations were usually sufficient to produce a protective effect.

Anderson found that immunization could not be induced in certain children by the use of subcutaneous injections of diphtheria toxin; others said it could be done with difficulty. But it may be done without harm by dropping undiluted diphtheria toxin into the nares of children. Two successive nasal instillations with an interval of 24 hours, and a third instillation in 6 days, in a few cases protected against very toxic doses injected.

These results are so different from generally accepted facts that they are presented for what they are worth. With these findings an explanation of the internal situation is necessary. Theoretically, the blood ought to be loaded with antibodies; but this is not found to be so. Dale, following Stutz, says that after repeated injections the uterus becomes very sensitive to antigens, but that in several instances in which the uterus came from desensitized animals, it was not sensitive. The writer found that a protected pig after 36 days nearly died from an injection of 1 cc. horse serum; but that two pigs kept 101 days did not react at all to 1 cc. serum. According to most authorities, these pigs should have been resensitized. His own idea is that he antigen produces some metabolic changes protective against subsequent doses. He found some pigs made refractory by injections of blood from protected pigs. Pigs born of mothers protected by the nasal method exhibited some resistance.

His conclusion is that resistance of the type dealt with in his work must be a tissue resistance; certainly the serum in his cases was very poor in antibodies in the ordinary sense.

28

"Studies in the Pathology of Pituitary Dystrophy."

a. "Post Mortem Elevation of Temperature." b. "The Nature of the Fat Changes in the Liver and Panniculi." By ALFRED S. WARTHIN, Ann Arbor, Mich.

29

"Pathological Changes Arising from Overaction of the Cervical Sympathetic." By WALTER B. CANSON and R. FITZ, Boston, Mass.

The right phrenic nerve of cats was connected with the cervical sympathetic, the idea being that when fibres of the cervical sympathetic below the

superior cervical ganglion were thus connected with the phrenic they would be activated by a volley of impulses with every breath the animal drew. Several animals survived the operation and after a time developed curious symptoms. One of these is a great increase of the rapidity of the heart rate; in normal cats the pulse rate is 159, but in the treated cats the rate went to about 225. There is characteristic looseness of the stools. There is some alopecia and a sort of scleroderma in places; there is evidence of pruritus. The cats become more irritable. There is a marked increase of metabolism: the calories lost per sq. meter per hour being in normal animals 31 and in treated animals from 58 to 72. The increased heat output is attended with loss of weight. There should be mentioned also an increase of the pupillary slit on the operated side and exophthalmos. These conditions progress until the animals go to pieces.

All these facts seem to indicate that the condition is due to over-activity of the thyroid gland produced by overstimulation of its innervation. A question to be answered is why do not the normal emotional stimuli cause the same symptoms under ordinary conditions, while in pathological states they do? The hypothesis is advanced that there is a protective threshold between the preganglionic and the post ganglionic fibres, but that when the threshold is worn down by repeated stimuli under adverse circumstances impulses are permitted to pass over and symptoms of hyperthyroidism arise.

GROUP ON NEPHRITIS.

30

"Studies in Nephritis." By HENRY A. CHRISTIAN, CHANNING FROTHINGHAM, JR., JAMES P. O'HARE, and ALLEN C. WOODS, Boston, Mass.

a. Test renal meals in relation to renal function.

The main conclusions derived from these studies were: (1) Of the two general methods that of von Monakow requires 10 days while that of Hedinger-Schleyer requires but three, and that as much can be learned from the three day method as can be learned from the longer. From the standpoint of economy both of patient's time and hospital care, the shorter method is to be preferred. (2) The results obtained from the two methods are similar but not quantitatively identical. For the Hedinger-Schleyer test there is no constant curve of secretion: evidences of abnormality consist of more or less fixation of concentration and of output. Fixation of N-output is the last evidence of abnormality to become appreciable.

b. Quantitative studies of the non-protein nitrogenous bodies of the blood.

Urea nitrogen constitutes the major portion of the increase in nitrogen retention and is proportionate to the non-protein nitrogen. The creatinin increase tends to be proportionate to the other forms, but the unknown forms constitute the greatest source of non-protein nitrogen.

The nitrogen in spinal fluid was also quantitated; there was no advantage in this method over blood estimates.

c. Diuresis in relation to diuretics.

Diuresis in response to diuretics is infrequent in hospital patients. The total intake and output of fluid was measured and only 15% of the cases showed any diuresis: diuresis being defined as any day's output in excess of 1600 cc. or in excess of

intake. When diuresis does occur it is most commonly seen in cardiac cases; in these digitalis and forced fluids are the most potent measures. Next in frequency of occurrence was diuresis induced in nephritis: one half of these responded; the most constant cause of diuresis was digitalis given in cardiac decompensation. The next group in point of frequency in which diuresis was observed was of diabetes and typhoid fever in which diuresis occurred after increased intake of fluid.

There were 10 cases of nephritis in which no diuresis could be induced with theocin, theobromine sodiosalicylate, sodium citrate or caffeine. This provokes skepticism as to the efficacy of these agents. There was no edema in these cases; therefore, no decompensation. In a small group with edema not due to decompensation (electrocardiograph), diuresis was very uncertain.

Diuretic drugs do produce diuresis but only in the right kind of cases. Diuresis may most often be induced in cases of combined renal and cardiac insufficiency; the best results follow theocin and digitalis, but in a few cases theobromine sodiosalicylate and digitalis act better than the first combination; why this is so is not known. Diuretics act best in cases with edema. If no edema is present diuretics do no good and may possibly do harm.

d. Functional tests in relation to anatomical changes in the kidney.

No more accurate anatomical diagnosis can be made with functional tests than without.

31

"Is There a Clinical Picture of Suppurative Nephritis?" By RICHARD C. CAROT, Boston, Mass.

32

"Poisoning with Bichloride of Mercury and its Treatment." By SAMUEL W. LAMBERT and HENRY S. PATTERSON, New York.

33

"The Isolation of a Toxic Substance from the Blood of Uremic Patients." By NELLIS B. FOSTER, New York, N. Y.

GROUP ON DIABETES.

34

"Long Fasting in Diabetes." By FREDERICK M. ALLEN, New York, N. Y.

Partial pancreatectomy with retention of the duct produces a satisfactory experimental diabetes, and animals prepared in this way can be studied advantageously. In mild experimental cases dietetic management suffices to keep the diabetes in abeyance. More severe cases quickly pass into an uncontrollable condition. If, in controlled cases, glycosuria is allowed to reappear, the animals quickly go down with destruction of the islands of Langerhans. Those kept sugar free stay lively and show no injury of the islands.

Patients at the Rockefeller Institute have been treated on the basis of these animal experiments. An initial fast of from 1 to 8 days will completely stop glycosuria in most cases. Fasting can be undertaken in very severe, weak cases without injury, but with benefit. There are some unsuccessful cases due to infections or other complications but these do not constitute contraindications to fasting.

If undesirable symptoms arise in the course of fasting, after an interval of careful dieting, fasting can be resumed and carried to success. If after fasting and becoming sugar free, as Joslin has shown, the sugar and acidosis are allowed to return, the last state of that man is worse than the first. But cautious underfeeding, with occasional fast days, will suffice to keep these patients in good condition. Well established is the advantage of keeping the patients below weight and of maintaining a low fat content in the diet, thus reversing the doctrine of Naunyn and others. Dietetic restrictions are renewed on the detection of ketonuria or increase of blood sugar. To insure freedom from ketonuria and glycosuria fat is necessarily withheld from diet.

The salient features of the paper are:

1. In diabetes an increase of weight or of metabolism throws increased strain on the pancreas and does harm.
2. Fasting suffices to render the blood and urine sugar free.
3. A suitable diet and intercalated fast days will keep diabetes sugar free.
4. The paper opposes the idea of keeping diabetes up to the highest level of weight and nutrition.
5. It opposes the doctrine that calories lost in the urine must be replaced in the diet. It is found that feeding fat for this purpose results in return of sugar.

The treatment suggested has been practically applied in many cases and is applicable by the practitioner everywhere.

The question remains whether diabetes is a progressive disease or a temporary metabolic error. If the first, the treatment will keep diabetes comfortable for a time; if the second, the treatment will keep them well.

35

"Present Day Treatment and Prognosis in Diabetes." By E. P. JOSLIN, Boston, Mass.

It is no exaggeration to say that the advance in the treatment of diabetes during the past year has been greater than any since Rollo. This is not by chance, but it follows work done in the laboratory and clinic, and is an eloquent answer to the critics of animal experimentation.

The advance in treatment has been such that we can now teach patients to observe themselves, to examine their urine, to manage their dietary; because the physician can now control the situation absolutely. Thanks to Dr. Allen's work, we no longer nurse diabetes, we treat them.

Patients in the writer's practice have done better this year than ever before. Statistics are given.

Children do well under the fasting method; they obey readily and co-operate well. Complications disappear more rapidly than under any other management, especially carbuncles. A case of pregnancy with glycosuria to 6%, was carried successfully to term and was delivered by Caesarean section with recovery of mother and child. Operations of others sorts have been successfully carried on diabetics. Cases of long duration and cases with severe acidosis do well under starvation management.

Some of the advantages of the method:

1. We have an attainable ideal toward which to work; to get patients sugar and acid free.
2. We are relieved of the machinations of quacks and the exploitation of drugs and patent foods.
3. The patient is relieved of the expense of long treatment and may go back to work.

Whether this treatment will influence those cases which under other regimes went on to sclerosis remains to be seen.

The following points are important in the technic of the fasting treatment: patients must be educated just as they have been in tuberculosis; they must not gain weight too fast; they must rest; they must remain under observation.

Query: Does coma represent a termination of diabetes? or, rather, is it not an avoidable accident?

36

"A Study of the Acidosis Occurring in the Nutritional Diseases of Infancy." By JOHN HOWLAND and W. MCKIM MARRIOTT, Baltimore, Md.

37

Mild Diabetes in Children." By DAVID RIESMAN, Philadelphia, Pa.

Fatal diabetes is at times an unavoidable accident in youth, but a mild diabetes occurs which may be satisfactorily treated.

A series of four cases is given in detail, all of which readily responded to dietetic treatment and all recovered.

The cases seem to belong to a well defined group called by Solomon, of Vienna, innocent diabetes of the young.

Glucose can no longer be recovered from the urine of the cases reported; this shows the high carbohydrate tolerance which can be regained. These cases of mild juvenile glycosuria may belong to the renal type.

1. There exists a mild type of glycosuria in juveniles.
2. There may be several cases in the same family.
3. The patients do not usually show the ordinary collateral symptoms of diabetes.
4. They are readily influenced by dietetic management.
5. They get well.

38

"Studies in Experimental Pancreatic Diabetes." By A. A. EPSTEIN and S. BAEHR, New York, N. Y.

Only recently has it been possible to study glycosuria from the blood standpoint. By using the bierie acid test of Allen and Benedict it is possible to get remarkably exact estimates in small quantities of blood.

The studies were made on depancreatized cats. Because of excessive thirst and large water intake, it was necessary to estimate changes in blood volume, which was done by a method of comparing the proportion of cells to plasma. Corrections of the blood sugar findings were made for blood volume fluctuations. The results of the corrections show a surprising difference from direct findings. Statistics were given.

All the cats showed a progressive rise in blood sugar, quite marked just before death. (This is not due to tissue decomposition because the rise begins while the animal is quite lively.) With the appearance of hyperglycaemia there is a diminution of

glycosuria. This is no doubt due to a renal insufficiency for sugar. For the reason that polyuria continues after the disappearance of sugar, failure of circulation is ruled out as a cause.

Experiments with pancreatectomy and double nephrectomy resulted in the production of a rise in hyperglycaemia, rapid in well nourished animals; in starved cats this rise was late in appearing but when it appeared it was acute and reached the same level eventually as in the well fed cats.

39

"Intravenous Injection of Dextrose and Depancreatization." By I. S. KLEINER and S. J. MELTZER, New York, N. Y.

GROUP ON SYMPTOMATIC TREATMENT.

40

"The Actual Value of Symptomatic Treatment." BY JOSEPH L. MILLER, Chicago, Ill.

Symptomatic treatment is now generally neglected. Is this a step in progress or only a manifestation of the scientific spirit? Is symptomatic treatment valueless, or is the physician merely impatient of any treatment that does not bear scientific scrutiny? Should not the problem be approached by inquiries into whether the symptoms themselves do any harm? or whether they hinder recovery?

When applied to undesirable symptoms, the use of dependable drugs is strictly scientific. The use of morphine in pneumonia with violent pleuritic pain; of adrenalin in spasmodic asthma; of alkalis in digestive disorders with hyperacidity: in all these conditions the application of the remedy to the symptom is unassailable from a scientific standpoint.

There is another group of symptoms, however, and another group of drugs, which have become related in one way or another: certain symptoms calling to mind certain drugs, not on scientific grounds, not always on reliable empirical grounds, but by virtue of habit, custom or unjustifiable repetition in the books. Such symptomatic treatment has no standing; and here a thorough revision of therapeutics needs to be made. Perhaps one of the most useful ways to attack this problem would be by teaching students the natural course of untreated diseases.

An authoritative evaluation of symptomatic therapy is of the utmost importance both for the comfort of our patients and also for clearing up the field of experimental therapeutics.

(To be continued.)

Book Reviews.

The Curative Action of Radium. By DR. SIGMUND SAUBERMANN, Charlottenburg, Germany. 1915.

This monograph is the reprint of an address on the progress of radium therapy delivered by the author at a meeting of the Roentgen Society in London on April 1, 1913. It presents the results of his research work on this interesting subject. It is well illustrated with a series of thirty-five half-tone illustrations, eight of which are engravings from photographs.

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CARLYLE'S OPINION OF PHYSICIANS.

THOMAS CARLYLE was a man with as positive ideas about doctors as those he held on all other subjects, and his manner of expressing them was equally original and forcible. In her "Memories of Victorian London," quoted in the issue of the *British Medical Journal* for Nov. 30, 1912, Mrs. L. B. Walford recalls a meeting with Carlyle one day during his residence in Chelsea. He was looking ill, but refused to see a physician.

"A friend related the following story: 'Did you ever hear how he turned on a poor country practitioner down at my brother-in-law's place, where he had an attack which frightened everybody, for it was uncommonly like cholera, and cholera was about?' My brother-in-law took it upon himself to send for the village doctor, a worthy old fellow with a long-established practice, and you may suppose Aesculapius was not a little flustered and flattered at being summoned to such an illustrious patient. With the utmost alacrity he made his way to the Hall, and was shown upstairs to the patient's bedroom, but

there his self-complacency received a rude shock. My brother-in-law told me he did not know which way to look when a shaggy head uplifted itself from the pillows and peered over the bedclothes. 'Who's that?' He replied that it was the doctor, whom he had thought it right to send for. 'Doctoer?' thundered Carlyle. 'I'm for none of your doctors. Of all the sons of Adam, men of medicine are the most unprofitable.' 'And the poor, unprofitable man of medicine found it impossible to obtain a hearing,' said our informant, shaking his head, 'and had to retreat ruffled and terrified. The worst of it was that his visit so annoyed and roused the Sage that it put fresh spirit into him, and he began at once to get better, all the time railing at doctors, and triumphantly pointing to his own ease as proving his point against the faculty!'

Carlyle's opinion about doctors, however, was not always of this nature. His own brother was a physician, and in his correspondence, Thomas several times speaks favorably of the profession. At the annual meeting of the British Medical Association in Bristol in 1894, Dr. Yeats presented a letter from Carlyle addressed to his publishers in Edinburgh:—

"It was addressed to a firm of Edinburgh publishers who had sent him a book published by them, written by one who hid his identity under the pseudonym 'Therapeutes':

"Chelsea 25th Feby. 1859.

"Dear Sir—I have received your book which you were kind enough to send me, and I beg to return you thanks for the same. It is a book (unlike many that come to me here) of a serious nature, the fruit of long study, meditation, inquiry, and evidently of perfect conviction on your part.

"I believe, and have long believed, the essential idea it sets forth to be not only true, but of the very highest importance to mankind, namely, that the Physician must first of all be a priest (that is to say, a man of pious nobleness devoted to the service of the Highest, and prepared to endure and endeavor for that same taking no counsel of flesh, and blood, as the theory of Priests is),—first of all, a real priest and then that the whole world should take supreme counsel of him, as it does of its real or imaginary Priests or Pontiffs this long while back, and follow said counsel as the actual will of God,—which it would be were the Physician what I say.

"It is curious to remark that Heilig in our old Teutonic speech is both Holy and also Healthy; that the words Holy and Healthy, a our antique fathers understood them, are one and the same. A thousand times has that etymology risen sorrowfully upon me, in looking at the present distracted position of affairs, which is horrible to think of, if we look earnestly int

t, and which cannot well be spoken of at all. We, sure enough, have completely contrived to divorce holiness (as we call it) from health, and have been reaping the fruits very plentifully during these fifteen hundred years.

"The notion of bringing our present distract-
ed anomaly of a Physician into union with our
itto ditto of a Priest, and making them identi-
cal is, of course, extremely chimerical; nor
can one easily say what ought to be the first step
towards bringing each of them back from his
nomalous imaginary condition and nearer to
eracticity, and the possibility of coalescing. But
am very glad to see the idea started, in any
form, under any vesture, and heartily wish you
success in bringing it home to men's minds.

"I remain, yours truly,

T. CARLYLE."

In a later issue of the *British Medical Journal* Dec. 7, 1912¹ is quoted another letter by Car-
lyle, under date of Jan. 18, 1842, to Dr. James
Inchison Stirling, first published in Miss
Stirling's biography of her father.

"Practically, my advice were very decidedly
that you *kept* by medicine; that you resolved
faithfully to learn it, on all sides of it, and make
yourself in actual fact an *iatropos*, a man that
ould heal disease. I am very serious in this
... A steady course of professional industry
as ever been held the usefulness support for
mind as well as body: I heartily agree with that.
And often I have said, What profession is there
equal in true nobleness to medicine? He that
abolish pain, relieve his fellow mortal from
ickness, he is the indisputably usefulness of all
men. Him savage and civilized will honor. He
is in the right, he is in the wrong who may. As
Lord Chancellor under one's horse-hair wig,
here might be misgivings; still more perhaps
a Lord Primate, under one's cauliflower; but
I could heal disease, I should say to all men
and angels without fear, '*En, ecce!*'"

Apparently his opinion of doctors was really
good deal better than might have been inferred
from the Chelsea episode.

diphtheria and have had the patient sitting up
laughing and talking a few minutes later have
experienced what is, perhaps, the most striking
example of the pleasurable feeling of almost
omnipotence that now and then seizes mortals.
The popularity of surgery, as well as its appeal
to lay minds, is based upon the specific nature
of its treatment. It is but natural that ty-
phoid fever, for so many years recognized as a
disease entity, should have had its share of in-
vestigation with the idea of obtaining a specific
treatment. There has grown up a literature on
the subject, and one form of therapy after an-
other has had its vogue only to be discarded.
The present trend seems to be towards some
sort of serum or vaccine treatment, and it is in-
teresting to note that there have appeared re-
cently and almost synchronously the reports of
three of these methods, all with apparently good
results.

In Germany Dr. Eggrehth has reported¹ forty-
eight cases treated with Besredka's vaccine, one
injection only being given in each case. Thirty-
eight of these showed good results, a crisis ap-
pearing in from six to ten hours and the tem-
perature remaining normal thereafter. In
thirty-four of these cases the temperature stayed
normal permanently, in one case there was a
slight rise from some unknown cause, and in
three cases there were complications which
caused some fever. In eight of the forty-eight
there were no results apparent from the injec-
tion; it is worthy of note that all of these had
complications, but all recovered. Two cases
died within three hours after the injection, one
of these cases had pneumonia and the other
intestinal hemorrhage.

Drs. Goldscheider and Angst report² 57
cases treated with dead bacilli, all, according to
them, with good results. In each case there was
an initial increase in temperature which lasted
several days, and then a crisis occurred, with
improvement in the clinical symptoms. These
doctors state that this treatment is contraindi-
cated in cases with pneumonia, hemorrhage,
weak heart or high blood pressure.

In England Drs. Bourke, Evans and Rowland
have reported³ the use of autogenous living vac-
cine with good results. The injection of this is
followed by marked constitutional symptoms.
There is a sharp increase of temperature during
the first few hours, followed by a marked fall
twenty-four hours later, together with im-
provement of the clinical signs. According to

THREE TYPHOID TREATMENTS.

As long as human psychology remains what it
is, the desire for exactness will impel medical
investigators to search for specifics. It is, of
course, a pleasant thing to be able to make the
diagnosis and then prescribe with the knowl-
edge that the disease will erump up before
our attack like a mob before a determined
sheriff. Those who have intubated a child
about to become asphyxiated with laryngeal

these English investigators this form of treatment cuts short the duration of the disease.

With all the above favorable reports, the physician finds himself with considerable latitude in the way of serum therapy, although it will doubtless be the opinion of most of our profession that sufficient cases have hardly been treated as yet by any of these methods to justify generalities. Moreover, it is to be hoped that the increasing popularity of typhoid vaccination will in time make typhoid fever a clinical curiosity.

¹ Wiener Med. Wochenschrift, 1915, xxviii, 269.

² Deutsche med. Wochenschrift, 1915, xli, 361.

³ British Medical Journal, 1915, 2831, 584.

PREVENTION OF MOTOR ACCIDENTS

In the issue of the *Medical Record* for Aug. 7 is an admirable editorial, suggesting the importance and desirability of more adequate examination of automobile drivers before their licensure. If the whole number of lives lost or injuries received each year due to motor-driven cars and boats were published, the large total would be a surprise to most readers. In this day of preventive study it is safe to say means can be adopted, when public opinion is ready to demand it, to make a reduction in this list.

How many intelligent people would risk their lives in a railroad train or steamboat, particularly in search of pleasure, if the pilots and engineers were required to conform to no more physical and mental standards than are required of motor boat or motor car drivers? It is for public protection that boats and trains are run neither on faith, ignorance or under the influence of alcohol, but as they should be by clear headed persons having knowledge of the construction and care of their machines with tested training and experience in the "rules of the road." Railroads and governments do not employ medical examiners for the fun of spending money or the pleasure of annoying engineers and pilots. Yet without all the safeguards demanded of railroads and steamboats, almost any one, normal or defective, may run his own high power motor boat or motor car through public waters or streets.

It is common to hear pilots complain that one of their troubles in the summer months is to keep out of the way or out of harm with a motor boat, run regardless of navigating rules. Also

normal auto drivers have a like experience on the road in trying to puzzle out what the fellow ahead or behind is going to do next. This does not mean that most drivers are in this class, but there are enough to keep the careful nervous

The time has come when the pedestrian and careful driver ought to be protected. Medical examiners could be appointed through oil service by state or government with adequate salaries to give whole time service by being appointed to districts to examine from time to time persons wishing to run boats or cars so as to keep on file official records of all applicants. This would show the number of persons applying that are color blind, deaf, mentally defective, with defective vision or any other nervous or physical defect.

With the information furnished, the licensing board would be able to decide as to what form of permit is to be issued, whether to allow the person to run a high- or low-powered motor. With persons physically fit it ought not to be difficult to weed out the wilful breaker of the road rules and the alcoholic by the court refusing a license or revoking a license in addition to other penalties if such driver was at fault in an accident. This is no more than pilots and engineers have to suffer.

The motor boat and automobile in healthy hands are valuable acquisitions to present life and should be encouraged. The pedestrian still feels a desire to live and keep the parts of his body together if possible.

OLD TESTAMENT MEDICINE.

THERE are many references in the Old Testament to disease, plagues, afflictions, palsies, etc., but these terms often seem to have several different applications or are so loosely used that their meaning cannot be definitely ascertained. In the *Scientific American Supplement* for July 31, Dr. Stuart B. Blakely has published an interesting account of the medicine of the Old Testament. His study of that document seems to have been so thorough that it is impossible here to do more than mention a few of the fruits of his inquiry.

Dr. Blakely asks us to remember that in dealing with the medical annals of the Old Testament we have at hand only the non-mi-

erature of a primitive, nomad race and of the references are obscure to the point of intelligibility to the modern reader. The references to medical topics in Biblical would seem to indicate that the priests were the only doctors among the early peoples. Land of Egypt was famous for its healers, kings of other countries sent for its physicians when their royal healths became delicate. Ancient Egyptians held that the liver was the source of happiness, which opinion may not be far off after all. The Hebrews possessed a code of hygiene and had numerous laws in relation to personal habits, community sanitation and kindred subjects, which might almost serve as models even today.

Leprosy is generally supposed to have been prevalent in those days, and yet we find only references to it in the Old Testament, and of the cases mentioned probably were not leprosy disease. Skin disorders, wherever they were general in distribution and chronic in nature, were called leprosy. The term plague, seems to be greatly misused by the Biblical writers. We think of it as the bubonic plague, "Black Death," to use the highly picturesque name by which it is commonly known, but in the Old Testament plague is loosely applied to an epidemic where the mortality was great. It does not seem likely that these were all instances of the great Black Death which killed one and a quarter millions in Germany in the middle of the 14th century and 70,000 in London in 1665. On careful analysis of the various plagues mentioned in part of the Bible, Dr. Blakely comes to the conclusion that of the five among the Israelites two were probably the Black Death. The plague of the Egyptians seems to have been either anthrax or smallpox. The description of the plague of the Philistines reads like this:

medicinal species, also had radically changed and improved the therapeutics and prognosis of syphilis. Dr. Finlay, one and the only survivor, of Reed's original Yellow Fever Commission, not only shared the perils and hardships of the labors of that devoted body, but was really the first to suggest the analogy of yellow fever to malaria as a disease of mosquito transmission. A full account of the lives of these men will appear in an early issue of the JOURNAL. Their death is a matter for universal regret, for the benefits accruing from their work are to all mankind without distinction.

MEDICAL NOTES.

EUCALYPTUS IN MENINGITIS.—A press report from Melbourne, Australia, by way of London, on Aug. 11, chronicles an announcement by Dr. Richard Bull, director of the bacteriologic laboratory of the University of Melbourne, that oil of eucalyptus is a specific coccicide for the *Diplococcus intracellularis meningitidis*. The truth and possible therapeutic value of this observation remain to be determined by scientific report and further clinical study.

PREVALENCE OF MALARIA, MENINGITIS, POLIOMYELITIS, SMALLPOX, AND TYPHOID.—The weekly report of the United States Public Health Service for Aug. 6 notes that during the month of June, 1915, 300 cases of malaria were reported in Arkansas and 1030 in Virginia. During the same period there were in Virginia 19 cases of cerebrospinal meningitis, 20 of poliomyelitis, 115 of smallpox, and 258 of typhoid. In New York there were 33 cases of meningitis, 10 of poliomyelitis, and 255 of typhoid. There were 24 cases of smallpox in California, 35 in Arkansas, 170 in Iowa, and 135 in Texas. There were 54 cases of typhoid in Arkansas, 76 in California, and 109 in Texas.

AMERICAN PUBLIC HEALTH ASSOCIATION.—The forty-third annual convention of the American Public Health Association is to be held at Rochester, N. Y., next week, from Sept. 6 to 10, inclusive. In conjunction with this meeting will be held also the fifteenth annual conference of the Sanitary Officers of New York State. The present officers of the American Public Health Association are: President, Prof. William T. Sedgwick of Boston; vice-presidents, Dr. C. J. Hastings of Toronto, Dr. Juan Guiteras of Havana, Cuba, and Dr. C. E. Terry of Jacksonville; secretary, Prof. Selskar M. Gunn of Boston; and treasurer, Dr. Lee K. Frankel of New York.

MURDER OF TWO EMINENT PHYSICIANS.—THE almost simultaneous death of two eminent physicians and scientific investigators, mentioned in another column of this issue of the JOURNAL, emphasizes one of the inevitable tragedies of peace in the midst of those of war. Dr. Dusch was famous chiefly as the inventor of arsan, a synthetic drug which not only is a product of brilliant and patient skill in research, but, as one of the few and most effective

In his call for this meeting Professor Sedgwick said: "This year we must beseech all the Americans to prepare to deal with unusual invasions of minute, mostly invisible, but often multitudinous and powerful enemies. We must defend American cities and American homes against typhus as well as typhoid, against Asiatic cholera as well as smallpox, and against bubonic plague as well as dysentery. Meanwhile, cancer and inanition, poverty and unemployment, gluttony and intemperance, uncleanness, bad air and perverted appetites will not abate, but rather exacerbate their activities because of war and its evil influence upon public health."

At the opening session Professor Sedgwick will deliver his presidential address on "Achievements and Failures in Public Health Work." The meetings of the six sections, composed respectively of health officers, laboratory workers, vital statisticians, sanitary engineers, industrial hygienists, and social workers, will deal in appropriate symposia with various problems of public health education, milk, death rates, administrative control of infectious diseases, infant mortality, the practical use of municipal vital statistics, sewage disposal, industrial morbidity and mortality, and control of venereal diseases. Among the Massachusetts physicians who will present papers are the following: Dr. F. G. Curtis of West Newton on "Is the Control of Measles and Whooping-Cough Practicable?"; Dr. G. W. Simons, Jr., of Boston on "Garbage Disposal in Small Towns"; and Dr. William H. Davis of Boston on "The Registration of Non-Resident Deaths." "Efficiency in the Worker and Its Maintenance" will be discussed by Dr. W. I. Clark of Worcester.

EXPECTATION OF LIFE IN VARIOUS COUNTRIES. In a recent issue of the *Journal of State Medicine*, quoted in the *Boston Transcript* of Aug. 11, the superintendent of the Scottish statistical department compares the expectation of life of male and female infants in various countries, as shown in the following table:

Country	Date.	Expectation.	
		Male.	Female.
Scotland	1891-1900	44.68	47.44
Scotland	1881-1890	43.92	46.33
Scotland	1871-1880	40.95	43.80
Scotland	1861-1870	40.53	43.85
Sweden	1901-1910	54.55	57.00
England and Wales*	1910-1912	51.50	55.35
Norway	1891-1900	50.41	54.14
Denmark	1895-1900	50.20	53.20
Scotland	1911	46.33	50.14
Holland	1890-1900	46.20	49.00
France	1898-1903	45.74	49.13
Belgium	1891-1900	45.39	48.84
England and Wales.	1891-1900	44.13	47.77
Massachusetts	1893-1897	44.09	46.61
Finland	1891-1900	42.90	45.60
Italy	1899-1902	42.83	43.17
Germany	1891-1900	40.56	43.97
Austria	1900-1901	37.77	39.87

* From a table not yet published.

BUBONIC PLAGUE IN HAVANA.—A case of bubonic plague was reported in Havana on Aug. 16, the first since the outbreak of the disease in that city last winter.

HOSPITAL BEQUESTS.—The will of the late Christine Kean Griffin, of New York City, who died on July 29, was filed on Aug. 16 for probate. It contained bequests of \$1000 to the Bellevue Hospital Training-School for Nurses, and \$500 to the New York Infirmary for Women and Children.

AWARD OF BAUMGÄRTNER PRIZES.—It is announced that the Vienna Academy of Sciences has awarded its Baumgärtner prize to Dr. Heinrich Rubens, of the University of Berlin, and to Dr. Wilhelm Trendelenburg, professor of physiology at Innsbrück.

IMPERIAL CANCER RESEARCH FUND.—At a recent meeting of the general committee of the British Imperial Cancer Research Fund, Dr. Sir Riekman J. Godlee was elected a member of that committee, and Dr. Sir Thomas Barlow a member of the executive committee.

SOCIETY FOR THE STUDY OF INEBRIETY.—A meeting of the Society for the Study of Inebriety was held in London on July 13. Major Leonard Darwin, president of the Eugenics Education Society, delivered the principal address on "Alcoholism and Eugenics."

EUROPEAN WAR NOTES.

RUSSIAN BARBER SURGEONS.—Report from Berlin on Aug. 19 states that, owing to the present paucity of surgeons in Russia, a large number of barbers, after six weeks' of medical training, have been drafted and assigned to duty as surgeons with the Russian army. If true, this statement indicates an interesting example of surgical atavism.

CANADIAN HOSPITAL UNITS AT DARDANELLES.—Report from London on Aug. 19 states that three hospital units recently sent out from Canada to England have been safely transported aboard the *Asturias*, two to the Dardanelles and one to Cairo, Egypt.

DEATH OF AN AMERICAN PHYSICIAN ON THE ARABIC.—Of the two Americans reported to have perished at the sinking of the *Arabic*, one was a physician, Dr. Edmund F. Woods, of Jamestown, Wis. Dr. Woods went to England last fall and had spent the winter and spring at London engaged in Red Cross work.

ENGLISH HOSPITAL TRAIN.—The following is a recently published description of a hospital train devised by the Great Eastern Railway of England, to convey wounded soldiers from the battlefield to hospital:—

"It consists of nine passenger cars of the usual English or Continental type, about fifty-five feet long. Five are used for wards with twenty beds each, two are the dormitories of the medical staff, one is the dispensary and operating room and the ninth is the kitchen-dining room. In the case the side-doors are fastened, excepting the double ones of the baggage compartment, the partitions and seats are removed, and the beds ranged along the walls in two tiers, each one movable so that it can be properly made up, and when in place a central aisle in the ward is afforded of nearly three feet in width. The windows are shaded by curtains, and the gas lights screened. The ward flooring is covered with linoleum and those of the toilets with lead and a white enamel paint used on the wood work everywhere.

"The service car has several compartments, for clean linen, soiled clothing, etc., an operating room, a pharmacy, the water is heated by means of a gas stove, and a fresh water tank is installed at the ceiling. The dining car may be converted into a dormitory at night, having disappearing tables, and the capacity for sleepers is ten. There is steam heat throughout, and what railway trains in general need almost everywhere, fresh air well distributed. The exterior is decorated with the Red Cross."

CHOLERA IN WÜRTTEMBERG.—Report from Geneva, Switzerland, by way of Paris, states that a case of Asiatic cholera has recently occurred at Cannstadt, Württemberg, in the person of a German soldier recently returned from Galicia. Precautions are being taken in the canton of Neuchatel, Switzerland, to prevent the introduction of the disease into that country from across the Austrian frontier.

BOSTON AND NEW ENGLAND.

SUPERVISION OF INDUSTRIAL HYGIENE.—An excellent work has been quietly done during the past few years by the Boston Association for the Relief and Control of Tuberculosis in the organization of clinics in factories, mills, stores and mercantile establishments, under the supervision of a visiting physician and a nurse. This movement is not only for the benefit of employees, but for the protection of the general public against various communicable diseases which may be transmitted through products of manufacture. The advantages of this medical supervision of health in factories are the early detection of disease, adaptation of work to the physical condition of the individual, and protection of fellow-employees from contagion. The advantages to the employer are in the greater efficiency of labor, greater content of workers, increased coöperation, and diminished loss of time from preventable diseases. The advantages to the general public are seen chiefly in the various food industries.

Obituary

EDMUND OWEN, M.B. (LOND.), F.R.C.S.,
LL.D. (ABERD.), D.Sc. (SHEF.).

MR. EDMUND BLACKETT OWEN, who died of cerebral hemorrhage on July 23, 1915, in London, was born at Finchfield, Essex, England, on April 7, 1847, the son of a physician. After obtaining his preparatory education at Bishop's Stortford and King's College, London, he began his medical training in 1863 at St. Mary's Hospital in that city. Later he studied in Paris, and in 1868 qualified as M.R.C.S.

From the outset, anatomy and surgery constituted his greatest interest, and as early as 1867 he was appointed demonstrator of anatomy at St. Mary's. In 1871 he became surgeon to outpatients at that institution. In 1872 he received the degree of M.B. (Lond.) and qualified as F.R.C.S. He was appointed lecturer on anatomy at St. Mary's Hospital Medical School in 1876; and in 1877, assistant surgeon to the Ormond Street Hospital for Sick Children. He became full surgeon at St. Mary's in 1882, and at Ormond Street in 1883. From 1888 to 1896 he was lecturer on surgery, in succession to Mr. A. Treherne Norton. He became consulting surgeon at Ormond Street in 1898 and at St. Mary's in 1902. He was also for a time surgeon to the French Hospital, London, and consulting surgeon to the Paddington Green Children's Hospital.

From 1905 to 1907 Mr. Owen was vice-president of the Royal College of Surgeons of England. In 1906 he delivered the Bradshaw Lecture on "Cancer: Its Treatment by Modern Methods"; and in 1911, the Hunterian Oration. In 1899 he was president of the section of diseases of children of the British Medical Association at its meeting in Portsmouth, and in 1903 president of the section of surgery at the meeting in Swansea. He was president of the Harveyian Society and of the Medical Society of London.

Mr. Owen was a prolific writer on surgical topics. His text-book on "The Surgical Diseases of Children" was published in 1885, and went through three editions and a French translation. In 1890 appeared his "Manual of Anatomy for Senior Students," and in 1904 his "Cleft Palate and Hare Lip." He was author of the article on surgery in the eleventh edition of the *Encyclopaedia Britannica*.

In recognition of his distinguished ability as a surgeon, teacher, and writer, Mr. Owen received honorary degrees from the Universities of Aberdeen and Sheffield, and was a Chevalier of the French Legion of Honor. He was correspond-

ing member of the American Orthopedic Association, the Canadian Medical Association, and the Imperial Medical Military Academy at Petrograd.

Of athletic and vigorous physique, Mr. Owen always maintained an active military interest, and at the outbreak of the present European War became surgeon-in-chief of the St. John Ambulance Brigade. In this capacity he established and organized the Epsom and Ewell War Hospital, and was intimately engaged in its work from last October until his death. He is survived by four daughters.

Mr. Herbert Page, writing of Owen in the issue of the *Lancet* of July 31, speaks as follows of his personality and of his characteristics as a surgeon:—

"His works on the surgical diseases of children, on cleft palate and harelip, and on club foot are, of course, known to everyone, and in these departments he was a recognized authority. Here as an operator he was doubtless seen at his best, while in general surgery there was marked distinction in his work. There was nothing which he feared to undertake, and difficulties, when they arose, were overcome by his courage and resourcefulness and by his knowledge of anatomy, in which he had been a teacher for many years. If onlookers might criticise they would, perhaps, have said that he gave too little thought to loss of blood, and he, of all men, honest to the backbone, would have least liked that this should not be said if it were generally believed. At first he took up an attitude of opposition to Listerian antiseptic methods, and poured contempt, both oral and written, on the ritual of the spray. He even went further than this, and at one of the societies, I think the Medieal, when Lister brought forward his open operation for fractured patella, Owen, with characteristic temerity, remarked in parody of the famous saying, that it might be magnificent, but it was not surgery. His papers and addresses on innumerable subjects were always pointed and suggestive."

"The record of his long service to St. Mary's, both as a surgeon and teacher, it is not easy to condense in words. An incisive speaker, with a marvelous store of apt illustration, he was a born teacher, as hundreds of students would amply testify. There was nothing anywhere quite like Owen's class in the theatre at the close of operations; by informed questions, by encouragement and sympathy, by veiled irony and gentle ridicule, by humorous invective, by instructive anecdotes of professional experiences, he seemed to draw all the boys unto him, and not even the most stupid of 'chronics' was afraid to go to the class again. Then the transparent honesty of the man, shown not least in an impulsiveness which led him to hasty conclusions, soon to be put aside, so that he would vote tomorrow against that which he had advocated today. You forgave, you laughed, and loved him

the more. And now his life here is run, and we lay this garland on his hearse. His memory will long abide, as that of a fine Englishman, fearless, independent, straight, free from self-seeking, held in respectful veneration by countless students, trusted by his colleagues, and withal a most lovable man."

In the issue of the *British Medical Journal* for July 31 is also the following estimate of Owen's character by Mr. F. Richardson Cross, of Bristol:—

"In the passing of Edmund Owen the profession of surgery has lost one of its leaders, respected for his uprightness and high sense of duty, and honored for the active part he has taken in medical ethics, and in the progress and improvement of surgical practice and in its fine teaching. He was endowed with good health and a fine physique. His personality and ability as a student soon attracted the attention of his seniors, and he made an unusually early entry into important positions in the profession. This early recognition was not misplaced, for he rapidly became one of the most popular teachers both in anatomy and surgery. He was a well known figure in his earlier days at several meetings of the British Medical Association. I went with him to America on the occasion of the Congress at Washington in 1887, and ten years later to St. Petersburg, when we represented the Royal College of Surgeons of England at the celebration of the centenary of the foundation of the Russian Army Medical Service, and at which an enormous number of delegates from all parts of the world were present. We had the especial honor of being in a small party of European surgeons who were, one by one, received in conversation by H. I. M. the Czar and afterwards took lunch with General Kuropatkin. Owen was always in good spirits, courteous, and amusing, but not at the expense of others. I never remember his saying an unkind word of any colleague, and he showed no unfair bias against opinions he did not agree with. If he could not speak well or kindly of men or matters he did not discuss them. He was a hard worker. He wrote and spoke forcibly and well. Perhaps by nature somewhat impulsive, he carefully considered his subject with ability, shrewdness, and common sense, and, having formed his opinion, he was fearless and honest in expressing his views, which were usually sound and accurate. His work for the Royal College of Surgeons as an examiner and on the council was whole-hearted and of the highest value. He had been an active member of all the subcommittees, and the personal knowledge and long experience that he had of its affairs made him one of its most trusted leaders. He has been spared from old age, and has gone down at his post and in his work."

Miscellany.

LARREY'S EXPERIENCE WITH FROST BITE.

In the issue of the *JOURNAL* for January 21, we published an item describing Larrey's personal experience in the Battle of Waterloo. The *British Medical Journal* in commenting on the frequency of frost bite during the present trench warfare in Flanders has recently referred to Larrey's experience on this subject. In the third volume of his *Mémoires de Chirurgie Militaire*, Paris, 1812, Larrey devotes a special chapter to the subject of gangrene caused by cold.

"This *gangrène de congélation*, as he calls it, was one of the worst troubles the surgeons had to deal with after the battle of Eylau, which was fought on February 8th, 1807. Only a small number of the men of the advanced guards escaped. In some the gangrene was limited to the epidermis of the toes or heels; in others the mortification attacked the tissue of the skin more deeply over a greater or smaller extent, causing the loss of toes or of the whole foot. Larrey notes that although for some days before and after the battle the men had been exposed to the most severe frost, they did not suffer in their extremities. The Imperial Guard, in particular, had stood in the snow, hardly moving for more than twenty-four hours, yet not one of the men had his feet frozen. Then suddenly the temperature rose several degrees and a thaw set in. At once a number of the men felt intense pain in the feet and numbness, heaviness and tingling in the extremities. The affected parts were dark red in color, but not much swollen. In some cases there was slight redness towards the base of the toes and on the dorsum of the foot; in others the toes had lost movement, sensibility, and heat, and were already blackened and dried up. Those who went to the fires of the bivouacs to warm themselves suffered most; the wounded in the field hospitals escaped because they had no chance of doing this. The progress of the disease was rapid, but it seldom extended beyond the toes and only rarely spread above the malleoli. Larrey insists that sphacelus of the foot must not be confused with gangrene of the skin. It often happened, he says, that a greater or less extent of the skin of the foot became mortified, without the vessels, deep nerves, tendons, ligaments or bones becoming gangrenous; in that case the patient felt pain when the subjacent parts were touched, but he could move his feet, and the internal heat was preserved. Sphacelus, on the other hand, deprived the limb of movement, sensibility, and all the properties that characterize life; the patient could not feel his foot, and it seemed to him that a foreign body hung to his leg. If the mortification was superficial, the eschars usually became detached between the ninth and thirteenth days, leaving a sore which quickly healed. If the whole of the limb was necrosed the patient succumbed to the

sepsis which followed the separation of the eschars.

"Larrey expresses the belief that unless the patient has been exposed to the influence of the cold long enough to produce local asphyxia, and unless a second 'sedative or narcotic cause' such as alcohol is coöperating with it internally, the partial or general gangrene does not occur while the cold lasts. Travellers pass the Alps and the Pyrenees in the most rigorous cold without evil consequences as long as the temperature does not change. The Poles choose the time when the frost is likely to last to go on long and difficult journeys by caravan, but they dread such journeys at the times when the temperature is variable. During Napoleon's campaign in Holland a large number of men had their feet 'frozen,' but this happened only when thaw set in. Larrey, therefore, holds that cold is only a predisposing cause, the sudden application of heat being the determining factor. When the affected parts have already lost mobility and natural heat, and sensibility is blunted, frictions with snow and melted ice are the best means of exciting the paralyzed vessels to healthy action. He recommended that the circulation should be maintained by the successive application of spirituous and camphorated tonics, the gradual administration of cordials internally, dry and hot friction over all the body, and continuous but moderate exercise. If there were no snow or melted ice handy he advised that coarse cold red wine, vinegar, and camphorated brandy, made cold by plunging it into spring water should be used instead. In hopeless cases amputation when the line of demarcation had formed was, he said, the only course open to the surgeon."

Correspondence.

EUGENICS AND MODERN WARFARE.

BOSTON, August 27, 1915.

Mr. Editor: In an editorial in the issue of the *JOURNAL* for Aug. 26 you present most ably one side of the question of the eugenic, or rather dysgenic, effect, of modern methods of warfare.

On the other hand, it is probably true that other aspects of the question ought also to be considered. For better or for worse civilization has hitherto advanced, and on the whole grown better, in spite, if not as a result, of war. War between nations is after all only one manifestation of the animate struggle for existence, so impersonal, relentless, and cruel among the lower animals, yet nevertheless a biologic phenomenon even among men.

As a matter of fact war does not kill or hopelessly cripple all the best men who engage in it. Some of the young and vigorous survive to have children, and some have left issue before going to their death. It is commonly alleged that a war injures the victorious nation more than the vanquished, yet there are examples in history to the contrary. Caesar found the Belgians the bravest of all Gauls; yet, though their land, the cockpit of Europe, has been drenched with blood for nineteen centuries, their race has remained prolific, hardy, and seems to have lost none of its virile and sturdy physical and moral qualities. Moreover, the example of France has shown the tremendous regenerative powers of nature. In races as well as in individuals,

Perhaps, in the long run, a peaceable nation suffers more, eugenically speaking, from war than does a belligerent people; and the experience of time seems to have shown that ultimately the race which can beat another in war is really the superior, mentally and physically, and will survive, at least until it succumbs to other adverse conditions. Doubtless a great war is always a great calamity, yet it is one which civilization has always hitherto survived. Indeed, it is an arguable question whether civilization itself does not sometimes involve evils more perilous to the race, from a eugenic standpoint, even than those of war, which seems and in fact is, the temporary negation of civilization.

After all, this question, like many others, seems hard to settle by *a priori* theory or opinion. The thing which really makes the present European War by far the most momentous in history is not its extent and intensity, but the fact that it is probably going far to answer, by the experimental method, so many problems, biologic, eugenic, moral, philosophic, political, social. It is a costly experiment, but, since it has been fallen, should hopefully be regarded not as a fatal catastrophe.

Very truly yours,

AUDI ALTERAM PARTEM.



AMERICAN SURGEONS IN FRANCO-PRUSSIAN WAR.

18 WEST CEDAR STREET, BOSTON.

Mr. Editor: May I inquire through the Journal if any of your readers know of American doctors who were in the Prussian service in the Franco-Prussian War? I was stationed at Pont-à-Monton, 17 miles from Metz. Dr. Avery, now or recently living in Brooklyn, N. Y., was with me, but I can learn of no other surviving.

WASHINGTON B. TRULL, M.D.



BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF TREASURER FOR THE WEEK ENDING AUG. 21. CONTRIBUTIONS.

Dr. G. N. Kreider, Springfield, Ill.....	\$ 5.00
Dr. Hugh A. Cuthbertson, Chicago, Ill.....	10.00
Receipts for the week ending August 21.....	\$15.00
Previously reported receipts.....	\$7514.84
Less error, Dr. Dowd credited twice..	25.00
	87789.84

Total receipts.....	\$7504.84
Total disbursements.....	\$7310.04
Balance	\$ 494.80

F. F. SIMPSON, M.D., *Treasurer*,
704 Jenkins Arcade Bldg.,
Pittsburg, Pa.



SOCIETY NOTICE.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.—A quarterly meeting of the Essex North District Medical Society will be held at the Danvers State Hospital, Hathorne Station (Tel. Danvers 37) Wednesday, Sept. 8, 1915, at 4 p.m. sharp, upon invitation of Dr. Kline, Superintendent.

The meeting will be held jointly with the Essex South, and Dr. C. F. Withington of Boston, president of The Massachusetts Medical Society, has accepted an invitation to be present.

Paper will be presented as follows: Dr. H. A. Hale, of Philadelphia, Professor of Therapeutics and Diag-

nosis in Jefferson Medical College, upon "Certain Facts of Interest About the Cardiovascular System." Free discussion desired (five minutes each).

A buffet lunch will be served after the meeting.

Let us have a large attendance to welcome our esteemed speaker and to enjoy pleasant social intercourse with Essex South under the roof of Dr. Kline's splendid hospital.

The next meeting of the Censors will be held at Hotel Bartlett, Haverhill, Thursday, Nov. 11, 1915, at 2 p.m. sharp. Candidates for admission to the Society should bring their diploma.

The Committee on Membership of this Society invites and desires the members to invite every conscientious, skillful physician, eligible to membership in the Society, and residing within its jurisdiction, to appear before the Censors of Essex North at their meeting on Nov. 11, 1915.

V. A. REED, M.D., *President*.

J. FORREST BURNHAM, M.D., *Secretary*,
99 Bradford Street,

Lawrence, Mass., August 31, 1915.

RECENT DEATHS.

DR. AMMI WARD FOLLETT, of Somerville, Mass., died at his home in that city, Aug. 15, aged 57 years. He was born in Royalton, Vt., January 27, 1858, was graduated from the Dartmouth Medical School in 1881 and was for five years assistant superintendent of the Butler Hospital, Providence. Dr. Follett had practised in Somerville since 1888. He was a Fellow of The Massachusetts Medical Society and of the American Medical Association and was a Mason. He is survived by a wife and two sisters.

DR. PAUL EHRLICH, who died of heart disease on Aug. 20 at Bad Homburg, was born in 1854. He was famed as the inventor of salvarsan; and in 1908 was awarded one-half of the Nobel prize in medicine for that year.

DR. CHARLES E. FINLAY, who died on Aug. 21, in Havana, Cuba, was born at Camaguey in 1833. He was a member of Reed's original Yellow Fever Commission, in 1858, but had retired from his profession, some time ago.

DR. JAMES CHARLES FAHEY died at Northampton, Mass., August 24, aged 48 years. He was a graduate of the University of Vermont College of Medicine in 1891 and had practised in Northampton since that date, being a Fellow of The Massachusetts Medical Society and of the American Medical Association. He was city physician from 1896 to 1900. He is survived by a widow and three children.

DR. JOSEPH LAWRENCE HICKS, who died recently at Flushing, Long Island, N. Y., was born in 1834. After graduating from the Polytechnic School at Troy, N. Y., he received the degree of M.D. from the New York College of Physicians and Surgeons. For many years he was visiting physician to the Flushing (L. I.) Hospital, until his retirement in 1911.

DR. EDMUND F. WOODS, who died at the sinking of the *Arabic* on Aug. 19, was born at Aldborough, Norfolk, England, in 1854. Coming to the United States in 1860, he obtained his early education in Ohio and Wisconsin. He obtained the degree of M.D. in 1880 from the Indiana Medical College, and until 1889 practised his profession in Darlington, Wis. He then removed to Janesville, Wis., where he continued until the outbreak of the European War. He is survived by his widow.

APPOINTMENTS.

UNIVERSITY OF NEBRASKA.—Dr. Max Morse has been appointed assistant professor of biochemistry.

WESTERN RESERVE UNIVERSITY.—Dr. William Evans Brunner has been appointed professor of ophthalmology; Dr. H. H. McGregor, instructor in biochemistry; Dr. C. D. Christie, director of the clinical research laboratory; and Dr. Russell J. Collins, demonstrator of pharmacology.

The Boston Medical and Surgical Journal

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Original Articles.

LATE RESULTS OF OPERATIONS FOR CORRECTION OF FOOT DEFORMITIES RESULTING FROM POLIOMYELITIS.

BY HERMAN W. MARSHALL, M.D., BOSTON,

AND

ROBERT B. OSGOOD, M.D., BOSTON.

[From the Orthopaedic Clinic of the Massachusetts General Hospital.]

TWENTY-SIX cases were selected for this study from among many patients treated at the Massachusetts General Hospital. All simple tenotomies of the tendo Achillis for equinus deformity, all plantar fasciotomies for slight contractions of the feet, all recent cases of all sorts were discarded and only the more complex ones of longer duration retained. All patients within this restricted class, however, that came back for final observation are included, both good and bad results. The number of cases is small because the orthopaedic ward of the hospital was not opened until November, 1907, and only a few years of patients' admissions, therefore, are available. The average length of time that has elapsed since operative interference among the twenty-six cases reported is four years and ten months; and it is interesting to note how widely the older patients have scattered, in this particular series scarcely a half of them being able to return for observation.

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The cases show the results of seven astragalectomies, six arthrodeses of ankle joints, numerous tendon transplantations, arthrodeses of small joints of the feet, tenotomies, fasciotomies and osteotomies, but it is to be regretted that there are included none of the tendon fixations recently advocated by Gallie.

Group statistics will be presented first, followed by individual histories, and finally a few brief conclusions will be drawn. In detail the varieties of surgical procedures were as follows, and their different combinations will be seen in the individual records of patients.

Five cases of tendo Achillis lengthening or tenotomy.

Five cases of plantar fasciotomy.

Seven cases of tibialis anticus tendon transplantation for varus deformity.

One case of tibialis posticus tendon transplantation for previously over-corrected valgus deformity.

One case of tibialis posticus tendon transplantation into a weakened tendo Achillis.

Five cases of peroneal tendon transplantation for valgus deformity.

Five cases of peroneal tendon transplantation into weakened tendo Achillis.

Six cases of extensor longus hallucis tendon transplantation laterally into head of first metatarsal bone for hyperextension and flexion of the great toe.

Two cases of arthrodesis of the first phalangeal joint of the great toe associated with transplantation of extensor longus hallucis tendon.

Nine cases of arthrodesis of smaller joints in connection with tendon transplantation, e.g. cal-

cano-cuboid joint, five instances; astragalos, saophoid joint, four instances.

Five cases of osteotomy, *c.g.* os calcis, two instances; astragali, two instances; external cueniform bone, one instance.

One case of insertion of a silk ligament from the tibia to the tarsus for valgus deformity.

There were four examples of calcaneus deformity, five of marked equinus, ten of decided varus, and twelve of valgus defects.

Four calcaneo-valgus deformities ended as follows: (1) A poor functional result from increased instability of the foot following transverse osteotomy of the os calcis and transplantation of peroneal tendons into the tendo Achilles. There was partial correction, however, of the anatomic defect. (2) Slight functional improvement from an astragalectomy, but the patient was obliged to wear a long leg brace because of knee weakness. (3) A fair degree of improvement after an astragalectomy. The patient wears now only a leather ankle support. (4) An excellent result with nearly complete correction of deformity; very good stability, and no braces needed after astragalectomy.

Seven astragalectomies showed useful, very stable feet in four cases, slight instability in two cases, and serious instability in one instance.

Arthrodeses of the ankle joint yielded solid useful ankles in good position three times. One was stable and useful with a few degrees of motion in the joint. Two relapsed into their former bad conditions, and one of the two was followed by a successful astragalectomy.

Five tendo Achilles lengthenings and tenotomies showed two perfect results, and three improvements from partial corrections; and no bad terminations.

Five tendo Achilles strengthenings exhibited partial restorations of strength in four of the five instances. The fifth was no worse than in its original state.

Age at times of operation varied between four and a half and thirty-eight years, averaging sixteen. Eleven were males and fifteen were females. None was operated upon until three years or more had elapsed after the onset of the paralysis. The latest result is shown in a thirteen year old girl, now eight years and one month after operation. The earliest result recorded is that of a girl of five years at time of operation, and two years and six weeks had elapsed when the last observation was made.

Post-operative Care. The weakest link in a chain of therapeutic procedures determines the strength of the whole and the degree of success of final results; also surpassing merits of certain individual links in the series do not compensate for weaknesses in other ones. Obviously, therefore, it is necessary for fair judgments to include in consideration of results the after treatment which all patients received.

All patients of the series had their feet and legs supported in plaster casts immediately after operation, and, as soon as the wounds were

found to be healing satisfactorily, all were sent home to report periodically at the out-patient department of the hospital. They came back walking with crutches, their operated feet held in corrected positions without having borne weight. Casts were split then, and massage, exercises and baksings prescribed, or in some instances iron foot braces were fitted and medico-mechanical treatments given while the feet were thus held. Crutches were discarded gradually as weight-bearing became gradually possible. Weight-bearing was begun late as a rule, sometimes just before the plaster casts were taken off, not until a month had elapsed after operation generally, and modified greatly according to circumstances. In the earliest instances casts were split and bivalved five or six weeks after operation, but frequently ten weeks elapsed before they were cut, and the longest periods were three months and a half.

Complete removals of casts ranged from six weeks to five months when no braces subsequently were to be worn, the average time being three months after operation. When braces were needed for a while they were substituted for casts on an average of four and a half months after operation, but these times for changing from one form of support to the other varied also between limits of six weeks and nine months. One long leg brace that is being worn at the present time was not fitted until four years had elapsed after the surgical treatment, owing to other complicating conditions.

Patients' records show that braces sometimes were worn for a period and then were discarded. This happened with five persons who wore their supports from six months to four and a half years before leaving them off, showing an average length of time of sixteen months that the leg irons were used.

Medico-mechanical treatments were instituted usually as soon as casts were made removable, but the ease with which regular returns to the hospital were possible influenced these physical therapeutic measures greatly. One patient received eight treatments in nine months, while another had fifty in three months, and many obtained none. Nine only of the twenty-six patients received massage, baking and supervised exercises regularly.

Durations of supervisions are important factors in final results, because old deformities may return very gradually without pain and without incapacitating individuals, so that the only safe efficient course for patients consists in submitting to occasional examinations from time to time. Seven of the twenty-six patients in the series were not lost track of for more than a few months at any time after their departure from the hospital ward. The others returned rather irregularly and more or less as they thought the circumstances warranted, the average length of time which they were under observation being sixteen months, varying between extreme limits of six weeks and four years. Poor results re-

ported by patient eighteen in the table may possibly be due to the fact that he was not seen but twice during the six weeks following his operation, just long enough to have fitted an arthrodesis brace, after which he was not heard from until written to for the final report.

The last statistics show that nine patients who had been wearing iron braces previously had finally discarded them after operation. Twelve who had worn no apparatus before, except foot plates or simple ankle supports, continued to wear nothing more after surgical care than they had previously used. Their improvements consist simply in partly correcting the existing degrees of deformity. More apparatus was required after operation by five persons, usually because improved foot conditions permitted more weight bearing, so that in consequence weakened knees required the support of long leg braces.

CONCLUSIONS.

Twenty-three patients from the total number of twenty-six were distinctly improved after their surgical experiences, although such results perhaps will seem rather unexpected to persons who have witnessed and made comparisons between healthy normal individuals and results of operations seen in infantile paralysis cases. Poor as some operations appear to be at first glance when judged from this standpoint, nevertheless they usually show increased usefulness if compared with previously more deplorable conditions that existed in each instance. Patients themselves agree with these medical judgments, and errors in the casual observations of disinterested persons rather than inefficiencies of surgi-

cal procedures must be held responsible for many bad impressions received of results of operations.

Among the twenty-three beneficial results there were four excellent ones, ten good ones, six that showed moderate improvement and three with slight betterment.

One of three unsuccessful results may be explained, in part at least, as due to this patient's neglect and failure in having post-operative supervision. He relapsed into his former condition and the other two seem slightly worse than previously to their operations.

It is of interest to observe that there were no overcorrections of deformities following tendon transplantations in this series, the usual result being partial correction accompanied by some functional improvement and with only occasional perfect success and complete restoration of function. Over-correction of deformities, however, occur, as demonstrated by the single previously overcorrected case, which was subjected to a second corrective operation to overcome the first bad result.

These late conditions indicate in a general way what may be expected from surgical treatments of fairly complicated infantile paralysis cases in a large hospital where there are a number of different operators and division of responsibilities in the after-care of patients. These statistics, however, are far too meagre and incomplete to possess weight in comparison between individual control of patients from beginning to end and co-operative direction of treatments by groups of physicians. All that can be said is that with a fair degree of co-operation methods herein described have proven themselves reasonably safe and successful.

LATE RESULTS OF OPERATIONS UPON FOOT DEFORMITIES FOLLOWING INFANTILE PARALYSIS.

NO. 1. THIRTEEN-YEAR OLD GIRL.

MAIN POINTS OF OPERATIONS.	CONDITIONS BEFORE OPERATIONS.	OBJECTIVE CONDITIONS AFTER OPERATIONS.	SUBJECTIVE FUNCTIONAL RESULTS.
Tibialis anticus tendon transplanted into the arthrodesis line between the os calcis and cuboid bone.	Moderate varus deformity. Peroneal muscles and extensor communis digitorum very weak. Good strength in tendo Achilles group, also in adductors of the foot. Moderate cavus. For a short time a foot brace was worn, then it was discarded because no improvement was observed by mother to result from its use. Duration of paralysis, four years.	Six years and one month after operation the foot is slightly undercorrected. There is good stability in weight-bearing position and no brace is needed. Dorsal flexion of the foot is possible to a right angle passively. No voluntary dorsal flexion. Slight varus and cavus deformity still persist.	The patient is pleased because she can walk better. The foot is in much better position, with no appreciable tendency at present for the deformity to grow worse.

No. 2. EIGHT-YEAR OLD BOY.

MAIN POINTS OF OPERATIONS.	CONDITIONS BEFORE OPERATIONS.	OBJECTIVE CONDITIONS AFTER OPERATIONS.	SUBJECTIVE FUNCTIONAL RESULTS.
Tibialis anticus tendon transplanted into the arthrodesis line between the os calcis and cuboid bone.	Moderate varus deformity and slight equinus. Peroneal group of muscles very weak. Tendo Achillis group normal. Tibialis anticus and tibialis posticus very strong. A varus foot brace was necessary. Duration of paralysis, five years.	Three years and eight months after operation the foot is slightly undercorrected, showing a little varus deformity and some calluses along its outer margin. Stability is good in weight-bearing position. Dorsal flexion is possible passively to a right angle, but voluntary motions dorsally are slight. No voluntary adduction or abduction of the foot.	The patient considers his operation a great benefit because he is able to walk well and work regularly now.

No. 3. SEVENTEEN-YEAR OLD GIRL.

Tibialis anticus tendon transplanted into periosteum of os calcis. Osteotomy of os calcis and arthrodesis of calcaneo-cuboid joint.	Moderate varus deformity with slight equinus, also slight hyperextension of great toe. Peroneal group of muscles weak. Tendo Achillis group of muscles of moderate strength. Tibialis anticus and extensor communis digitorum strong. Voluntary dorsiflexion and adduction of foot possible. Operation advised after ether manipulation and corrective plasters had failed. Duration of paralysis, fourteen years.	Four years and one month after operation the foot still remains slightly undercorrected. The same hyperextension of the great toe exists. The standing position is very stable with some varus deformity and adduction of the forefoot. There is no voluntary dorsal flexion, but passively the foot can be pushed up with some resistance to a right angle. A foot plate is worn to take the pressure off the head of the first metatarsal bone.	The patient thinks the operation is some benefit because the shape of the foot has improved and she can walk as much as desired. The foot is very serviceable.
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No. 4. EIGHTEEN-YEAR OLD GIRL.

Tibialis anticus tendon transplanted into arthrodesis line between os calcis and cuboid bone. Extensor longus hallucis tendon transplanted into head of first metatarsal bone. Plantar fasciotomy.	Slight varus and slight equinus deformity. Hyperextension of great toe. Walked with a toe dragging gait. No braces worn. Muscle weakness confined mainly to peroneal group. Good strength in tendo Achillis group, also in tibialis anticus and extensor communis digitorum. Plantar fascia contracted. Duration of paralysis for many years.	Six years and nine months after operation the patient reports by letter that there is still slight undercorrection of the original deformity, but she can voluntarily raise the foot dorsally a little better than she could. No apparatus is worn. She disappeared from hospital supervision four months after operation with the foot in good position and wearing no plaster nor any iron support.	The patient says that the operation has been a little benefit. From medical standpoint the increase in voluntary motion probably signifies good function in the transplanted tibialis anticus muscle. Nothing is stated about the great toe deformity, and presumably it is at least no worse. Probably the result represents some improvement.
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No. 5. TWELVE YEAR OLD BOY.

Tibialis anticus tendon transplanted under annular ligament into internal cnemiform bone. Tenotomy of tendo Achillis.	Moderate varus and moderate equinus deformity. Had callus under cuboid bone and slight contracture of tendo Achillis. Never wore foot brace. Duration of deformity ever since he began to walk.	Three years and four months after operation the foot is in perfect weight-bearing position, although very slight adduction of the foot remains passively. Dorsal flexion possible voluntarily to a right angle.	The patient thinks the operation a great benefit.
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NO. 6. THIRTEEN-YEAR OLD GIRL.

MAIN POINTS OF OPERATIONS.	CONDITIONS BEFORE OPERATIONS.	OBJECTIVE CONDITIONS AFTER OPERATIONS.	SUBJECTIVE FUNCTIONAL RESULTS.
Tibialis anticus tendon transplanted into external uniform bone. Cuneiform osteotomy of neck of stragulus. Lengthening of endo Achillis.	Moderate equinus and moderate varus position. Peroneal group of muscles weak. Good power in tibialis anticus and in tendo Achillis group. No apparatus worn. Duration of paralysis, ten years.	Eight years and one month after operation the foot is slightly undercorrected in weight-bearing position, and slightly more so without weight. Stability excellent. Voluntary and passive dorsal flexion of 45°-50°. No abduction but free adduction. Transplanted tibialis anticus actively functioning. Tendo Achillis group of moderate strength. Brace is now necessary.	She would go through the experience again for the benefit derived from the improved position and function of the foot.

NO. 7. ELEVEN-YEAR OLD BOY.

Tibialis anticus tendon transplanted into cuneiform osteotomy line of external cuneiform bone.	Considerable varus deformity with adduction of forefoot. Slight equinus. Walks on outer edge of foot and ends of extended toes. Operation advised after previous ether manipulations. No brace worn. Duration of paralysis, many years.	Five years and one month after operation the foot is considerably undercorrected. Dorsal flexion limited passively to slightly less than a right angle. Calluses still present on anterior out part of foot. Slight function in transplanted muscle. No brace worn.	Patient thinks the surgical operation was some benefit, that there is some improvement in position of the foot.
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NO. 8. THIRTEEN-YEAR OLD BOY.

Peroneus longus tendon transplanted through the interosseous membrane into arthrodesis line between astragalus and scaphoid bone, passing through interosseous membrane and under annular ligament.	Foot was useless and held in a valgus position. Patient walked with crutches. Hip dislocated. Thigh contracted in fixed position of twenty degrees. Some muscular function in iliopsoas, glutei and hamstring muscles; also in peroneal group, tendo Achillis and in extensor longus pollicis. Duration of paralysis, twelve years.	Six years and two months after operation the foot is held in fairly good position by the foot plate of a long leg brace. Still some lack of correction of original deformity. Passive motion possible to a right angle, and dorsal flexion voluntarily is distinctly increased through function of the transplanted muscle. Still uses crutches.	Patient thinks the foot is very much more useful because he can bear some weight upon it and avoid so much weight on crutches.
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NO. 9. TWELVE-YEAR OLD BOY.

Peroneus longus tendon transplanted into arthrodesis line between astragalus and scaphoid bone, passing through interosseous membrane and under annular ligament.	Moderate valgus deformity. Tibialis anticus muscle weak and tendo Achillis group less so. Peroneal group of muscles and extensor communis digitorum strong. No brace worn. Duration of paralysis, nine years.	Five years and one month after operation he reports by letter, that the foot is still undercorrected and probably will require a brace before long although none is used now. There is a tendency for the valgus deformity to return, but he states that he has a little more voluntary motion in the foot than previously.	He thinks the operation a little improvement.
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No. 10. EIGHTEEN-YEAR OLD BOY.

MAIN POINTS OF OPERATIONS.	CONDITIONS BEFORE OPERATIONS.	OBJECTIVE CONDITIONS AFTER OPERATIONS.	SUBJECTIVE FUNCTIONAL RESULTS.
Extensor longus hallucis tendon transplanted into head of first metatarsal bone. Fasciotomy of plantar fascia. Lengthening of tendo Achillis.	Moderate equinus and slight varus. Hyperextension of great toe. Abductors of foot were weak. Plantar fascia contracted. Tendo Achillis shortened. No brace worn. Duration of paralysis since babyhood.	Four years after operation the foot is still somewhat undercorrected. Calluses and contracture of tendo Achillis persist in lessened degree. Dorsal flexion to a right angle is impossible, and patient walks on heads of metatarsals more squarely than previously. Calluses present in diminished degree. Hyperextension of great toe lessened but not perfectly corrected. No apparatus worn. He returned to the hospital after discharge from the ward, and the cast was removed, then he disappeared entirely. This fact probably has bearing upon the degree of improvement finally shown.	Patient says the foot appears straighter to him and walking has been improved.

No. 11. TWENTY-YEAR OLD WOMAN.

Extensor longus hallucis tendon transplanted into head of first metatarsal bone. Tenotomy of tendo Achillis.	Some equinus deformity and great toe hyperextended. Tibialis anticus and extensor communis digitorum muscles are somewhat weakened. No apparatus worn. Duration of deformity, eighteen years.	Two years and three months after operation the foot shows nearly perfect correction of equinus deformity and undercorrection of the great toe defect. Voluntary motion is possible to a right angle in dorsal flexion. The transplanted tendon of extensor longus hallucis functions only slightly. A foot plate is worn.	She is much pleased because she is able now to walk any distance desired without discomfort. The foot is in much more serviceable position with contractures of tendo Achillis completely relieved.
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No. 12. FIFTEEN-YEAR OLD GIRL.

Extensor longus hallucis tendon transplanted into head of first metatarsal bone. Arthrodesis of first phalangeal joint of great toe. Tenotomy of tendo Achillis. Plantar fasciotomy.	Marked equinus position. Great toe hyperextended and flexed. Extensor of great toe weakened. Tendo Achillis of good strength. Dorsal flexors of foot weakened but not paralyzed. No apparatus worn. Duration of paralysis since babyhood.	Two years and nine months after operation the foot is somewhat undercorrected for equinus deformity. Some calluses are still present under heads of metatarsal bones. Voluntary and passive motions in dorsal flexion are stopped apparently by bony obstruction at 80°. Extensor longus hallucis tendon is functioning well in its transplanted position. Slight voluntary adduction and complete voluntary abduction of the foot are possible. No apparatus worn.	Patient says there has been an improvement in her walking after operation.
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No. 13. FOUR AND A HALF-YEAR OLD GIRL.

MAIN POINTS OF OPERATIONS.	CONDITIONS BEFORE OPERATIONS.	OBJECTIVE CONDITIONS AFTER OPERATIONS.	SUBJECTIVE FUNCTIONAL RESULTS.
Peroneus tertius tendon transplanted into periosteum of scaphoid bone. Silk ligament passed from tibia to tarsal bones at inner side of foot.	Marked valgus deformity. Tendo Achillis group of muscles, peroneal muscles and extensor communis digitorum are fairly strong. Tibialis anticus, extensor longus hallucis and tibialis posticus are weak. Valgus brace worn. Duration of deformity, three years.	Seven years and one month after operation the foot is held in practically perfect weight-bearing position. Silk ligament strong and functioning well. Slight function in transplanted tendon. No voluntary dorsal flexion but passive motion dorsally to a right angle. No brace needed.	Patient's mother thinks the foot has been greatly improved, that there has been much improvement in form, stability and usefulness.

No. 14. NINE-YEAR OLD BOY.

Tibialis posticus tendon transplanted through interosseous membrane under annular ligament into arthrodesis line between os calcis and cuboid bone. At second operation extensor longus hallucis tendon transplanted into head of first metatarsal bone.	Moderate varus deformity resulted from previous surgical efforts to correct valgus deformity. The patient had been operated upon originally in another state and his valgus deformity considerably overcorrected. An attempt was made then to compensate for the varus position by a second operation of transplanting the tibialis anticus tendon into the external cuneiform bone. Varus position still persisted and the patient was walking with crutches with his foot held in a plaster when admitted to the orthopedic ward of the Massachusetts General Hospital. Duration of paralysis, several years.	Seven years and two months after operation the patient reports by letter that he can use his foot better and does not wear a brace. In walking the foot slaps down rather hard, and there is apparently some hyperextension and flexion of the great toe.	The patient thanks the doctors in the letter for all that was done. Presumably the last two operations represent a partial correction of deformity with a more serviceable foot.
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No. 15. THIRTEEN-YEAR OLD GIRL.

Tibialis posticus and peroneus tertius tendons transplanted into tendo Achillis. Transverse osteotomy of os calcis and elevation of its posterior fragment for reunion in corrected position.	Moderate calcaneus deformity with pes cavus. Slight power in all lower leg muscles. Tendo Achillis group weak. Partial paraparesis of quadriceps and biceps muscles in thigh. No brace worn. Duration of paralysis, seven years.	Four years and eight months after operation the foot is still in calcaneus and cavus position of less degree. Position in weight bearing is good but more unstable. Some strength in tendo Achillis. No brace worn although one has been tried unsuccessfully.	Patient states that she turns her foot more than she did before operation, and thinks the condition is worse.
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No. 16. FOURTEEN-YEAR OLD BOY.

Arthrodesis of ankle joint preceded two months, by plantar fasciotomy and arthrodesis of astragaloseaphoid joint.	Varus position with considerable cavus deformity. Walked with brace and high soled shoe. Muscles of lower leg badly paralyzed including tendo Achillis group, peroneals, extensor communis digitorum and tibialis posticus. Duration of paralysis, since babyhood.	Five years and three months after operation a friend reports that the foot is all right, "A great success." Patient considered one of the finest dancers in town. On leaving the hospital he returned twice to the out-patient department, was fitted with a brace and then disappeared seven weeks from time of operation.	An improvement from the patient's standpoint.
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No. 17. TWENTY-ONE-YEAR OLD MAN.

MAIN POINTS OF OPERATIONS.	CONDITIONS BEFORE OPERATIONS.	OBJECTIVE CONDITIONS AFTER OPERATIONS.	SUBJECTIVE FUNCTIONAL RESULTS.
Arthrodesis of ankle joint. Tenotomy of peroneal tendons.	Valgus deformity. No power in leg muscles except slight function in peroneal group and in extensor communis digitorum. Valgus foot brace worn. Duration of paralysis, eighteen years.	Six years and four months after operation the foot is held in excellent weight-bearing position with practically no motion in the ankle joint. There is still a little cavus deformity. No apparatus needed.	The patient is pleased with the result, and there has been marked improvement in usefulness of the foot from improved position and stability.

No. 18. SEVENTEEN-YEAR OLD BOY.

Arthrodesis of ankle joint. Arthrodesis of astragalus-seaphoid joint. Peroneus tertius tendon transplanted into scaphoid bone.	Marked valgus deformity. Anterior part of the foot abducted. Lower leg muscles all weak. Tibialis anticus and tibialis posterior muscles weakest. Peroneal group strongest. Tendo Achilles group and extensor communis digitorum intermediate in strength. Walked with crutches and very little weight bearing on affected foot. Duration of paralysis, since babyhood.	Seven years and three months after operation the patient reports by letter that his foot turns in as badly as before operation. He used crutches for six years then his local shoemaker made him a shoe which he uses with a brace and a cane. He returned twice to the out-patient department where he was fitted with a brace, after which he was lost sight of entirely six weeks after operation.	He says the operation did him no good, although he is no worse off apparently. Lack of supervision and of post-operative care seem important factors in the late results of this case.
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No. 19. TWENTYNINE-YEAR OLD WOMAN.

Arthrodesis of the ankle joint. Fracture of lower end of fibula.	Valgus deformity. Stability of foot poor. No power in anterior tibial muscle or peroneal group. Tendo Achilles group weak, also quadriceps weak in thigh. Valgus foot brace worn. Duration of paralysis, many years.	Five years and two months after operation there is firm union in the ankle joint with a little voluntary and passive motion at medio-tarsal joint. Stability and weight-bearing position are excellent. A little cavus deformity persists. Wears a plate.	She thinks the operation a great benefit, and has not missed a day's work for four years. From an orthopedic standpoint the result is excellent.
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No. 20. THIRTY-TWO-YEAR OLD MAN.

Arthrodesis of ankle joint preceded five weeks by operation, plantar fasciotomy, division of calcaneo-seaphoid ligament and osteotomy of astragalus. (Jones' operation in two stages.)	Valgus position. Cavus deformity. Valgus foot brace worn. Lower leg muscles all practically paralyzed. Duration of paralysis, many years.	Four years and eight months after operation the foot is in good right angled weight-bearing position with ten or fifteen degrees of passive motion. Some persistent cavus. A few degrees of adduction and abduction passively are possible. No brace needed. He remained under hospital supervision only five months, being fitted with a brace, and then he disappeared, walking satisfactorily without crutches.	A decided improvement from patient's standpoint.
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No. 21. TWENTY-YEAR OLD WOMAN.

MAIN POINTS OF OPERATIONS.	CONDITIONS BEFORE OPERATIONS.	OBJECTIVE CONDITIONS AFTER OPERATIONS.	SUBJECTIVE FUNCTIONAL RESULTS.
Three operations. An arthrodesis of left ankle joint was followed in one week by an astragalectomy in the right foot. The third operation an astragalec-tomy with transplantation of peroneal tendons into tendo Achillis, followed the arthrodesis of the left ankle in eight months, and was performed on account of increasing motion and valgus deformity following the first operation.	Extensive paralysis of both legs. Double leg braces worn. All muscles except tendo Achillis group were paralyzed on the right side. All muscles except intrinsic muscles of the foot were nearly paralyzed on the left side. Slight power in peroneal group. Hamstrings and quadriceps active in right thigh. Hamstrings weak and quadriceps fairly active in left thigh. Duration of paralysis, since eight months of age.	Three years and one month after operation she can walk around the house without any apparatus. Awkward slow gait due to genu valgum. Both feet are in good weight-bearing positions with good stability. Passive motions of thirty or forty degrees are possible. Right tendo Achillis fairly strong. Left tendo Achillis weak but functioning.	Patient considers the operation a great success because she is no longer obliged to wear braces, and is able to get around comfortably although somewhat awkwardly.

No. 22. THIRTY-EIGHT-YEAR OLD WOMAN.

Astragalectomy. Transplantation of peroneus longus and peroneus brevis tendons into tendo Achillis. Peroneus tertius transplanted into tibialis anterior tendon.	Calcaneo valgus position. Instability in weight bearing. Tendo Achillis group weak. Tibialis anterior paralyzed. Peroneal muscles strong. Foot brace worn.	Two years and three months after operation the foot is in much improved weight-bearing position. Fifteen degrees of passive motion at the ankle, and a few degrees of voluntary motion from the transplanted peroneus tertius. Tendo Achillis fairly strong. Still some instability in foot, but this is not noticed very much because a long leg splint with foot plate has to be worn on account of a weak knee.	She thinks the operation a benefit, although obliged to wear more apparatus now, because she can walk better on the foot.
	Duration of paralysis, since childhood.		The foot is more serviceable from having an improved position.

No. 23. FIVE YEAR OLD GIRL.

Astragalectomy. Transplantation of peroneus longus and peroneus brevis tendons into tendo Achillis.	Calcaneo valgus position. Lower leg muscles all weak, strongest ones are peroneal muscles and extensor longus hallucis. No brace worn.	Two years and six weeks after operation the foot is in excellent position with good stability. Passive motion of fifteen or twenty degrees. Slight but useful function in tendo Achillis, also very slight function in anterior tibial and extensor communis digitorum tendons. No brace needed.	Much improvement from patient's standpoint.
	Duration of paralysis, since birth.	She disappeared two months and three weeks after operation when the cast was removed.	

No. 24. TWELVE-YEAR OLD GIRL.

Astragalectomy. Tenotomy of peroneal tendons.	Marked varus deformity. All muscles of lower leg very weak.	Two years and eleven months after operation the foot is slightly overcorrected into a little valgus. Good stability in weight-bearing. A few degrees of passive motions at the ankle are possible. No voluntary motion of the foot. Wears a long leg splint on account of weakness of knee.	She thinks the operation did some good, for in spite of more apparatus worn it seems that the leg is more useful.
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NO. 25. SIXTEEN-YEAR OLD GIRL.

MAIN POINTS OF OPERATIONS.	CONDITIONS BEFORE OPERATIONS.	OBJECTIVE CONDITIONS AFTER OPERATIONS.	SUBJECTIVE FUNCTIONAL RESULTS.
Astragalectomy. Two years later extensor longus hallucis tendon was transplanted to head of first metatarsal bone, and first phalangeal joint of great toe stiffened.	Moderate valgus deformity. All lower leg muscles weak. Moderate hyperextension of great toe. Hip dislocated. Quadriceps partly affected in thigh. No brace worn.	Six years after her first operation the foot shows a good position but is rather unsteady in weight-bearing. There are a few degrees of passive motion at the ankle. The position of the toe has been improved, but some motion in first phalangeal joint of toe still exists. No braces worn.	Patient says she is worse than before operation because of the instability of the foot.
	DURATION OF PARALYSIS, SINCE BABYHOOD.		

NO. 26. FOURTEEN-YEAR OLD GIRL.

Astragalectomy. Peroneus longus tendon transplanted into tibialis anticus tendon.	Calcaneo-valgus deformity. Tibialis anticus paralyzed. Tendo Achillis group weak. Peroneals fairly strong. Some cavus deformity. Wore leather ankle support.	Four years and five months after operation the foot is in good weight-bearing position, slight valgus with arch well preserved, good stability. Voluntary dorsal flexion is possible through a few degrees. Tendo Achillis of fair strength. Passive motion to right angle dorsally, also moderate adduction and abduction. Wears a leather ankle support.	Considerable improvement from patient's standpoint.
Peroneus brevis and tertius tendons transplanted into tendo Achillis.	DURATION OF PARALYSIS, TWELVE YEARS.		

THE CARNIVOROUS AND HERBIVOROUS TYPES IN MAN: THE POSSIBILITY AND UTILITY OF THEIR RECOGNITION.

II. CERTAIN GENERAL CONSIDERATIONS.

BY JOHN BRYANT, M.D., BOSTON.

INTRODUCTION.

THE proposition of the carnivorous and herbivorous types in man, as presented in a recent number of this JOURNAL,¹ has met with numerous expressions of interest in various quarters. Being, however, somewhat new, it is doubtless not to be wondered at, that although the basic idea appears to have created a favorable impression, the utility or even the possibility of applying the theory to the actual conditions of practice has remained in doubt. Therefore it is desired to submit a few general observations bearing upon this phase of the question, before considering in detail the set of tables given in the first paper of this series.

The editor of the JOURNAL, in a very sympathetic discussion² of this first paper, mentioned the diatheses, considered certain aspects in the evolution of the types, their characteristics, and referred to possible underlying sex differences.

The writer is in entire agreement with the editor's discussion of these points, which will be re-

viewed and perhaps extended, and then an attempt will be made to show a few angles at which the type theory comes into close contact with actual every day life; angles at which it is believed that the application of the theory will prove of service as a distinct aid in the obtaining of practical results—for example, by the educator, the employer of labor, the life insurance actuary, and the doctor.

DIATHESSES.

In his remarks upon the "Regulators of Metabolism," Paton³ has grouped the three chief influences concerned, in the following concise manner:

1. Hereditary Inertia or Inherited Developmental Tendencies.
2. The Nervous System.
3. The Chemical Products of Various Organs, the So-called Internal Secretions.

Of these three factors the third doubtless comes to occupy the most prominent place in post-embryonic or certainly in adult life. Thus the various diatheses which have been described ultimately represent the outward manifestations of the vagaries of the ductless glands. There is some evidence to show that within limits the activities of these glands may be varied by persistent attention to diet, but if one recalls the rather constant differences in the ductless gland supply of the two types it will not be difficult to prophesy in which group a given diathesis will

fall: thus exophthalmic goitre suggests the carnivorous, and myxedema the herbivorous type.

EVOLUTION.

Treves⁴ studied evolution in 200 different species of animals, as illustrated by changes in the intestinal canal; he concluded that evolution of the animal species largely depended upon food environment, and that although a gut might acquire specialized characteristics, these were easy to recognize, while the rudimentary character of a given gut remained very constant. Upon the strength of this work, he stated that the carnivore, with its short simple intestine, can be traced back by way of the felines, the canines, the bears and the raccoon, through the insects and chiroptera, to the amphibians and the monotremes, among the latter of which one finds the echidna, and still lower the ornithorhynchus. The herbivore, on the other hand, has an entirely different intestinal ancestry, leading back by way of the rhinoceros, the tapir and the horse, the hog, the hippopotamus and the ruminants, through the ungulates to the rodents and the marsupials. There is no overlapping. These two main groups run parallel and distinct, and are themselves distinct from a third group composed of the edentata which, from the evolutionary point of view, leads nowhere; its ancestors are extinct.

In the human also it seems that the statement of Treves concerning the dependence of type upon food environment must hold good. For example, many observers have demonstrated that within a given species of animal intestinal length is dependent upon the digestibility of the ingested food. But back of such lesser variants one finds active the restrictions imposed by climatic conditions. Thus temperature controls not only food distribution, but growth and differentiation, since these two are incompatibles. At the equator light and heat are intense; plant growth is abundant, but human growth is stopped by early differentiation and maturity. In the temperate zone toward the cold area, conditions are optimum for human growth, but plant growth is less luxuriant. In the arctic regions, with a minimum of both light and heat, human growth is again stunted, and plant growth is conspicuous by its absence. As plant growth decreases with the distance from the equator, so, conversely, man's food becomes more and more carnivorous the nearer he lives to the arctic zone; in these regions he must eat flesh or starve. On account of these and other factors it comes about that man at the equator eats a high carbohydrate diet, the dweller in the temperate zone uses a mixed diet, and the arctic yields a pure meat with high fat diet. It is only reasonable to suppose that this also must have its effect upon development. Doubtless it is for some of these reasons, as well as on account of the higher protein diet, that the children of the immigrant from Southern Europe tend toward the carnivorous type in our northern states.

Arguing somewhat after this manner, Cattell⁵ has asserted that a boy born in Massachusetts or in Connecticut is fifty times as likely to become a scientific man as a boy born along the southeast seaboard, from Georgia to Louisiana—that is, if he stays put. Somewhat similar ideas are advanced by Ellsworth Huntington,⁶ in an article entitled "Is Civilization Determined by Climate?" He draws attention to the results of bringing the negro north and of bringing the white man south in America, as indicating an inversion of hereditary ability by climate. Huntington recognizes only five centres of high civilization and climatic energy (variability) at the present day: Western Europe, Northeastern United States, Japan, the Pacific Coast of the United States, and Southeastern Australia including New Zealand. He holds that the decline of ancient civilizations, such as those of Mesopotamia, India, and China, was synchronous with climatic alterations. When one keeps in mind these statements, and the fact of the retrogression of the glacial border line during the past ages, it is perhaps interesting if not profitable, to speculate on the northward march of power in Europe. First Egypt, then Rome, Spain and France held the sceptre. Now it is England. After England, then what, and when?

TYPE CHARACTERISTICS.

Given the presence of the two human types in one locality, what may be expected of them? History provides abundant answer. Thus in England the square-jawed Roundheads under Cromwell stirred up the country for a few years and disappeared. The hatchet-faced Puritans found England too crowded and settled a new world. Today hawk-nosed bird-men rule the upper air. The carnivore is the restless pioneer, inductive, dying ever on the outskirts in search of something new.

The herbivore is the sedentary stabilizer, deductive, ever at his appointed task. Both are necessary to the progress of the world, and neither can do the work of the other. It seems unlikely that the human species will ever be reduced to one type, but should this come to pass one might hazard a surmise that the surviving type would be a mixed one, perhaps three parts carnivore and one part herbivore.

SEX AND TYPE.

There can be no question but that in the human species the female tends more to the herbivorous and the male toward the carnivorous type. Doubtless, as among the American Indians the influence of the chase and of the meat diet worked in one direction in the men, and the sedentary habits, hard muscular work, and carbohydrate diet of the squaws was active in the other direction: meat and the wilderness, civilization and cereals, are still in a sense synonymous. But there is another and no less potent factor yet active. This is the demand of pregnancy and

lactation upon the calcium metabolism of the woman. Under present conditions meat for the table is carefully drained of most of its calcium before it leaves the slaughter house. This is proved by the fact that it has been possible for numerous workers to produce a calcium deficiency in laboratory animals by the simple process of feeding them unlimited quantities of meat, corn, and fat. Consequently if a woman is to get an adequate calcium supply for the period in question she must get it from vegetables, from an herbivorous diet, and it is possible for this reason that many women instinctively crave a calcium-high carbohydrate diet during pregnancy. For this reason then, if for no other, it would seem that woman must ever remain at least predominantly herbivorous, in spite of her very evident present tendency toward the male type. This tendency also doubtless depends on the fact that increasing prosperity results in increasing proteids, especially meat, in the diet, a phenomenon now evident not only in this country, but all over Europe, and in Germany in particular, where per capita meat consumption has doubled in recent years.

The carnivore is dominant among the lower animals, and among men today unless royalty and nobility are now effete, but for the good of the race it is to be hoped that women do not aspire too seriously to join the dominant group.

THE EDUCATOR.

Being concerned mostly with children in the adolescent formative stage, the constructive opportunities of the educator loom large, and a knowledge of type puts at his disposal a means of insight into the mental and physical makeup of his pupil which can in no other way be so easily acquired: the possibilities for helpfulness and prevention are almost limitless. Environment is doubtless important, but it must after all be considered as affecting different material in different ways, and short fat John Johnson will under a given stimulus react in an absolutely different manner from lanky overgrown James Jamieson. Here is a new boy. What is he and how will he act and for what will he be best prepared? Simple anthropometric measurements at once determine whether he is of an extreme or an intermediate type. If he is of intermediate type, a medical examination, with perhaps a thorough Roentgenographic study of the gastrointestinal tract will further aid classification. This accomplished, all else within reasonable limits of error and with only sufficient exceptions to prove the rule, may in a broad way be predicted. The physical and the mental education may be directed into the proper channels, and the working boy may be prepared for a definite occupation with full assurance that it will be one in which he will appear to good advantage. There is also a possibility that when an extreme type is recognized early, persistent attention to diet over years of time may produce some modification of type in a given individual,

should this be thought desirable. In a word, a study of type is one more aid to efficiency.

THE EMPLOYER OF LABOR.

The man and the job: will they fit each other? Some such question is ever presenting itself in one form or another to the employer or his subordinates. How is one to tell? The expert knows at a glance perhaps. Ask him how he knows, and it is doubtful if he can go much further than to say that his judgment is based on experience. Type provides another key, should experience be scanty.

A large employer of labor in one of the government services was discussing type with me. He found the subject interesting, for long experience had enabled him to divide labor into two classes. Being asked on one occasion by the chief of service how much help he wanted for a certain piece of work, he replied without thinking how it would sound to his chief, "about so many broad-backs and so many narrow-backs." Under the circumstances this remark necessitated apology and explanation, but in it lies a nut-shell compend of the relation of labor to type. The explanation was to the effect that the broad-backs were the office force, who stayed behind and worked up the data obtained by the narrow-backs; the latter were to draw their pay for their proficiency in overcoming obstacles to success in field work.

THE LIFE INSURANCE ACTUARY.

The actuary now attributes great importance to blood pressure: it is precisely on this question of blood pressure that knowledge of type may be of use to the actuary, since it is one of the most characteristic points of difference between the two types. Assuming that the normal pressure ranges from about 110 to 140 (systolic) in healthy adults, this range of 30 m.m. may be split in half at 125. The carnivore will usually be found to have a pressure below, and the herbivore above this figure. Therefore a reading of 95 or of 155 must be interpreted according to type. In disease, pressure tends to fall in the carnivore but to rise in the herbivore. Conversely, high pressure is more suggestive of serious trouble in the carnivore, and low pressure in the herbivore. In other words, a pressure of 155, which may be said to be 15 m.m. above the upper normal limit, is so only for the herbivore; for the carnivore it is an increase of 30 m.m., or 100% more serious an indication than for the other type, corresponding to a reading of 170 for the herbivore. The same argument applies to the reading of 95; it is only 15 m.m. low for the carnivore, but 30 m.m. low for the herbivore, corresponding to a drop to 80 m.m. in the carnivore.

A further illustration of the importance of considering type is provided by the way in which certain drugs produce a given action in this person, but its contrary in another person. This

is entirely paralleled in work upon the lower animals, as for instance by the finding of Dale and Laidlaw,⁷ that beta-aminazolyethylamine⁸ produces a large vaso-dilator fall of blood pressure in carnivora, but a vaso-constrictor rise of pressure in the rabbit. It is thus obvious that type provides the actuary with an additional means of calculating the risks he is called upon to insure.

THE DOCTOR.

The set of tables recently presented⁹ makes it unnecessary to discuss at length the value of a knowledge of type to the medical man, especially in view of the publication in this JOURNAL of the recent Shattuck Lecture by Dr. Joel E. Goldthwait,⁵ who has in his essay presented a valuable summary of present knowledge of type, the results of his own observations and those of others, under the title "An Anatomic and Mechanistic Conception of Disease." To this article and to the editorial¹⁰ accompanying it, those interested are referred, with the assurance that they will be convinced on at least two points—that present conscious medical appreciation of type only follows upon some thousands of years of unconscious appreciation of type by the non-medical world, and that the chief lesson to be learned is concerning the value of education upon this subject.

The laboratory worker who conducts his investigations without regard to type leaves them open to criticism. Thus metabolism experiments must be conducted upon individuals of the same type or the subjects will react differently to a given diet. Doubtless in this fact lies a possible suggestion for the solution of certain discrepancies reported by various laboratories working upon a given problem.

Appendicitis has for some years been used as a touchstone for any proper medical discussion. One has to look no further to find a means of illustrating the value of applying type to clinical medicine. The carnivore may have a chronic appendix for years, but the chances are more than ten to one that it will not kill him. It may be said in parenthesis that in him the appendix gets a bad name when it is usually at fault only secondarily to trouble in the region of the hepatic flexure, or because, for instance, the splenic flexure is very high and difficult of passage for ingested food. If, on the other hand, the herbivore ever gets appendicitis, it is likely to be primary, fulminating, and apt to flood the peritoneum with pus, and to cause sudden death. There is nothing mysterious in this difference of the disease in the two types. It is to be expected; it is the natural result of rather constant anatomical differences in the shape of the appendix. The appendix in the carnivore is conical in outline, and the base of the cone is always at the orifice of its lumen, making obstruction improbable. The herbivore, on the other hand, is the unfortunate possessor of an

appendix shaped more like a tube with end blind and sides parallel. Its diameter is as great at the tip as at the orifice, unfortunately often greater. There is even a tendency to stricture at the orifice, with results which are only too obvious. Thus it comes about that this type of appendix not infrequently acts as an efficient closed tube for the cultivation of trouble in the form of bacteria. In this connection it may be observed that in a somewhat extensive series of autopsies studied in Europe,¹¹ it was without exception the perfectly developed, beautifully modelled herbivorous type of child which died of fulminating appendicitis; the scrawny children died of other things, but not of trouble primary in the appendix.

CONCLUSION.

The theory of type can and should be applied to the conditions of practice. Knowledge of the meaning of type is an asset valuable to the practitioner in every field of human endeavor.

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PNEUMOCOCCIC ARTHRITIS, WITH REPORT OF SIX CASES.

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PNEUMOCOCCIC arthritis is a condition which usually occurs during the course of a pneumonia, and is relatively infrequent. It generally appears during the first nine days of a pneumonia, but may come on at a later period. Primary pneumococcic arthritis attacks are rare. Severe arthritis may follow a mild pneumonia.

Occurrence. Arthritis occurs in about 0.1% of pneumonias. Strickler, quoted by Richardson,¹ has noted that out of 11,846 cases of pneumonia, arthritis occurred 800 times, or 14%, which is unusually high. Herrick, on the other hand, has reported that it occurred but 14 times in 11,706 cases of pneumonia in foreign clinics, or one case to every 800 of pneumonia, which it may be stated is about the usual percentage of occurrence. It may occur at any age, is apt to be more frequent in the first ten years of life, and is seen more often in the male than in the female.

Primary joint infections are more common in

* The amine from histidine commonly called histamine or ergamine.

children than in adults, and previous damage to the joint by trauma and rheumatism predispose to infection. Alcoholics are particularly prone to infection.

Up to 1911 there had been reported but 172 cases of pneumococic arthritis, showing that it is a relatively rare condition. The first case where the organism was isolated and identified was reported in 1888 by Weichselbaum. Buckley² states that 34% of the 172 cases collected by him occurred in the first five years of life. Herzog³ states that joints of children in early life are predisposed to pneumococic infection the same as other serous membranes, that is, pleura, peritoneum, pericardium and meninges. It is more apt to be rare in adults without a preceding lung infection.

Herzog believes that the frequency of infectious arthritis in infants is due to the structure and vascular arrangements of the bony portion of the joints. He quotes Neumann, who has shown that the capillaries of the bone marrow in infants are of a larger calibre than the smallest arteries, an arrangement whereby the blood current is rendered extremely slow and the deposition of infective organisms in the tissues favored.

Sex. Buckley reports that in an analysis of his collected cases over ten years of age he found approximately 78% males and 22% females. This disproportion has usually been ascribed to the influence of trauma, which unquestionably predisposes to infection, and to which the male is more subject than the female. In the six cases, five children and one adult, I am going to report, there were two males and four females. The question of trauma does not hold true to such an extent in children under ten, and the predominance of the male sex is not shown in a study of cases occurring in the first decade or semi-decade.

Period of Onset. Buckley states that in 73 cases in his series eleven days was the average time elapsing between the onset of the pneumonia and the development of the arthritis. In this series of six cases of mine the first case developed three weeks after a tooth extraction; the second five days after a primary trauma of the knee joint, with no pneumonia at any time; the third had pneumonia five weeks before, and double otitis media three weeks before knee involvement; the fourth was an adult, an elderly man, who developed a suppurative shoulder nine days after the onset of his pneumonia, and following a trauma to his shoulder the day before the onset of his pneumonia, during the clearing up of an unresolved condition of consolidation in his lungs; the fifth had had several attacks of broncho-pneumonia covering a period of years, and the knee became involved five days after an acute attack of otitis media; the sixth had had an attack of pneumonia two weeks before the onset of the knee symptoms.

In this series it can be seen that the knee was involved five times and the shoulder once. This is true of all series reported, the knee being the most frequently involved, with the shoulder next

in frequency. The other large joints follow, such as the elbow, hip, ankle and wrist. Trauma, previous joint disease and diminished local resistance are adequate causes for local infection, for it has been shown by Rosenow and Cassati that the pneumococcus is usually found in the blood of a person suffering from a pneumonia. In regard to the cases which had had no previous pneumonia, but whose infection was secondary to some local infection, such as a tooth abscess or an otitis media, it can be stated that many otitides mediae in children are due to the pneumococcus, and that pneumococci may always be found present in an individual's mouth.

The process is usually suppurative, but in a few cases may be serous.

There may be three forms of such joint involvement, namely: (1) light, without visible changes, (2) serous form, (3) purulent form, which is the most common. There may also be periarticular conditions with secondary joint involvement. The cases appearing during the course of a pneumonia are said to be much more severe than those appearing later. The mortality has been quoted all the way from 75% (Zezas⁴) to slightly over 50% (Buckley). Herzog states that the mortality in infants is about 39%. In regard to children, the end results are usually good as far as the joint is concerned.

Forms 1 and 2, as noted above, may get well without other treatment than simple fixation, and rarely require more than that, except possibly aspiration. Provided free drainage is established where pus is present there is usually very little permanent damage done to a joint in children. Given free drainage the pus ceases to spread in any direction, and the affection is generally sharply localized.

The prognosis is usually good, provided the drainage is satisfactory and the infection has occurred after the pneumonia has cleared up. Certain cases are so overwhelmed by the infection, however, that they die in spite of adequate drainage. Ankylosis of the joint is rare.

Clinical Symptoms. Clinically the condition is recognized by the ordinary signs of an acute inflammation, and if following or during an attack of pneumonia the diagnosis is reasonably clear. The actual diagnosis, however, depends on bacteriological examination. Infection of a joint may occur during the course of a pneumonia, which, however, is not necessarily pneumococci in origin, and a careful bacteriological examination is necessary to establish a diagnosis. The joint is swollen, tender, not reddened, sensitive to motion and to pressure. There is also an irregular or high temperature, which usually drops by crisis following evacuation of the pus.

Treatment. The joint may be aspirated to determine the presence or absence of pus and to determine the bacteriological contents, following which, if pus is present and the symptoms persist, there should be an open incision and free drainage. In children wholesale opening of the joint with curetting, or opening of the shaft of the

bone should not be practiced, for these measures do more harm than good, and tend to spread the infection and increase the destructive process.

Following operation, fixation of the part by a splint or a plaster shell until the wound has ceased to discharge is essential.

Bacteriology. Attempts have been made in two of these cases to be reported to differentiate the types of pneumococcus in accordance with those described by Cole,⁵ but we were unable to produce the pneumococci in pure cultures by means of passing them through mice, even when we used emulsions of the affected lungs or pus from the knee joint.

In detail the following six cases are reported:

CASE 1. J. C. Boy, age 4. Children's Hospital, January 11, 1908. Three weeks before entrance child had a tooth pulled. Two days following this the cheek swelled and has remained swollen. During this time he was up and about playing, although he seemed feverish at times. On January 1, 1908, eleven days before entrance, the child got up as usual, but at noon the father noticed that he was lame. The child kept putting his hand down on to his right thigh. At first the knee was swollen, this later disappeared, and the thigh above became more swollen. Has been in bed for past ten days. Three days ago, there appeared a swelling on the right side of the face over the region of the parotid gland. The father thinks that the child breathes faster the past three or four days, and has had a slight cough for several days.

Physical examination showed a child, well developed and poorly nourished, dusky pale color, cervical glands enlarged, over carotid on right there is a tender, warm, fluctuating and reddened area, bloody nasal discharge, pharynx reddened, looks raw, one shallow ulcerated area size of a split pea between right anterior pillar and uvula. Breathing rapid and shallow, lungs show diminished resonance, and typical pneumonic areas over whole of both lungs. Extremities—Right leg flexed at hip to about 50 degrees, cannot move leg. Right thigh swollen, markedly so in its inner and posterior aspect, and rather fusiform in shape. Very tender, marked fluctuation, no apparent involvement of hip joint, slight general icterus.

Operation with gas. Incision over area of greatest fluctuation on thigh and about eight ounces of foul, yellowish-green pus evacuated, rather thick. Culture showed pure pneumococcus. The next day, the 12th, he was given 3000 units of anti-pneumococcus serum without benefit. The 13th both ears began to discharge, and there was increasing delirium, with coma, twitching of right arm, retraction of head, etc. The day following, the 14th, he died. There was no autopsy, but cultures from the throat, the thigh abscess and from the blood showed pure pneumococcus. There was no x-ray of the thigh taken, for the child was too sick to be moved.

Case 2. A. K. Girl, age 15 months. Five days before entrance the child, while walking on the floor, slipped and fell, striking her knee. The next day she could not walk, and has not been able to since. Four days ago the knee began to swell. Motion of the knee causes pain.

Physical Examination. Fat, well-developed baby, breast-fed. Right leg normal. The left leg was held

flexed at about 45 degrees, and there was considerable pain on attempts at motion. All the normal landmarks about the knee were obliterated. The surface temperature was markedly increased, with considerable capsular thickening. The patella was movable.

The child was kept quiet, but the temperature kept up to about 103, so the joint was aspirated on the second day after admission. Examination of the fluid aspirated showed the pneumococcus in pure culture. The day following the aspiration the joint was opened through two lateral incisions. The synovial membrane was lightly injected, but not otherwise abnormal. The pus thin, grayish, slightly blood stained, with few white flakes of fibrin. Beneath the patella there was a white mass not adherent, about 1½ in. long and ½ in. wide, which was removed. The joint was then drained with a rubber drain from side to side.

Following this operation the child stayed in the hospital nineteen days. The wicks were removed from the wound on the ninth day, although a slight amount of discharge persisted. The father took the child home from the hospital against advice on the nineteenth day after operation, with the leg in a plaster cast.

CASE 3. Girl, age 6 months, July 12, 1909. Child gave a history of pneumonia five weeks previously, with discharging ears following three weeks later. Two weeks ago the mother noticed that the left leg was swollen from the hip to the foot. Some mottling of the skin, which passed away in a few days. Hip on left very sensitive. Temperature has been normal except that it would occasionally go to 101 in the afternoon.

The physical examination showed a well developed and nourished infant, with a large swelling over the left hip joint, and extending into groin, which fluctuated. No redness, but very tender. All motions at hip restricted and painful. The temperature was 101.8, pulse 155, respiration 55. The next day the child was operated on. An incision 2 inches long was made just anterior to the trochanter, and the abscess opened. About three ounces of greenish yellow pus evacuated. The capsule was found perforated, and in the capsule a loose piece of cartilage was found, which seemed to be the head of the femur. This was removed. A counter incision was made behind the trochanter and the cavity washed out with salt solution. Rubber tube drain. Culture pneumococcus. The child made an uneventful convalescence, and went home two weeks after the operation with some discharge still persisting from the wounds.

A month later the child was again admitted to the hospital for an abscess in the region of the right hip joint, which seemed to be superficial. This was opened and evacuated, and the child was discharged home four days later.

CASE 4. C. E. L. Age 67, male. Was seen in consultation with Dr. L. B. Clark of Waverley, Mass. Patient had had pneumonia for the past two weeks. The day before the onset of the pneumonia he fell on his right shoulder. The past nine days the shoulder has been swollen and tender, and has been getting worse. The temperature has been irregular, and the past two days the hand and arm have become swollen and edematous.

Examination showed the shoulder joint tense and fluctuating, with the swelling extending down on

the back to the tip of the scapula, where there was a slightly reddened area. A trocar was introduced at this point and pus obtained. Following this the opening was enlarged, and a counter opening was made in front of the joint. Eight to ten ounces of pus were evacuated, and a large drainage tube was inserted.

Following this opening there persisted very profuse discharge, necessitating dressings twice a day for a period of about six weeks, at the end of which time the patient died. After death an examination of the shoulder joint showed extreme disintegration of the cartilage. During life there was great pain on attempted motion, and grating or crepitus could easily be felt. No bacteriological study was made in this case, but it seemed certain that the infection could not be anything other than the pneumococcus. The x-rays of the joint were not very suggestive of destructive processes, and comparison with the well shoulder showed no very marked differences, in spite of the loss of cartilage and bare bone found post mortem.

CASE 5. G. P., girl, age 2 years, 8 months, 12 days. A pale, poorly developed and nourished child. She had been in the Children's Hospital four times before, and had been for long periods in the Convalescent Home of the Children's Hospital at Wellesley. She was an illegitimate child, bottle fed from the start, and had never been strong.

She was first admitted in March, 1913, at the age of one year. The diagnosis at that time was broncho-pneumonia, splenic anemia and splenic tumor. She was in the wards for a month. Her second appearance was in May a month later, and she remained six weeks, the diagnosis being broncho-pneumonia, anemia, otitis media, and a question of syphilis. Her next appearance was in August, 1914, after she had been on the Boston Floating Hospital, where she was taken for a splenic tumor. She had another attack of broncho-pneumonia, from which she recovered, and was discharged in about a month. Her splenic tumor was meanwhile enlarging, and an operation on its was advised, but on account of the child's poor general condition it was postponed after consultation. On Nov. 20, 1914, after having been in the country at the Convalescent Home, she was readmitted to the medical service on account of poor general condition and splenic anemia. On the 25th of November she had the left ear drum punctured for an otitis media. On the 30th the left knee joint became swollen, hot, painful to pressure and motion. Slight edema of left leg. Condition came on in last 18 hours. The day before it had been noted that when the left leg was manipulated the child cried, but no objective symptoms were present. The left ear has continued to discharge. On the first of December, the next day, she was seen in consultation by the orthopedic staff, and it was noted that there were limited motion, flexion, and slight widening of the condyles. The patella did not float. The temperature had been running between 104 and 105 for about a week. An x-ray was taken of the knee joint, which showed apparent periosteal stripping of the lower end of the femur. She was then transferred to the orthopedic service for operation.

On Dec. 4, 1914, the knee was incised in the region of the internal condyle. About one ounce of creamy pus was evacuated from the joint. The finger in the joint passed posteriorly through a large opening in the posterior portion of the capsule,

Four days later she died from apparently general sepsis.

An x-ray taken of the resected knee joint, post mortem, showed suggestions of the same periosteal thickening along the shaft of the femur as seen in life, but section failed to confirm this, and the condition was probably due to edema of the tissues.

The autopsy the next day showed that the base of the brain was filled with rather thick purulent exudate, which extended along over the cortex. The left middle ear contained a small amount of pus. No communication between the ear and meningeal exudate could be established. The knee joint showed edema of the ligaments and polymorphic infiltration. There were a few areas of necrosis in the attached striated muscles.

Bacteriology. Smears from the heart blood and the knee joint showed the pneumococcus, which failed to grow on culture. Injections of emulsified lung were made into mice to obtain a pure culture, but were not successful.

Diagnosis. Diffuse broncho-pneumonia. Spleen: Fibrous splenomegaly (Banti's disease). Brain: Acute purulent meningitis. Knee: Acute purulent synovitis.

CASE 6. Girl, age 1 year, 9 months, 12 days, Nov. 26, 1914. Child had bronchitis followed by pneumonia seven weeks ago. Still has some cough. Has been losing weight. About five weeks ago, immediately following pneumonia, the right knee and lower thigh have been swollen and tender to touch, so much so that she has not attempted to stand or walk. There has been no redness.

Physical Examination. Fairly well developed and nourished child. Lungs show marked dullness at right apex front and back. Over this area are heard bronchial breathing and moist râles.

Local. Patient cannot stand or walk. The right knee and lower thigh are perceptibly swollen, and she tends to hold the knee in about 60° of permanent flexion. The capsule is under tension, and there is definite fluctuation in the joint. The swelling begins just at the tuberosity of the tibia, and in a fusiform manner spreads about the joint and extends up the lower third of the thigh. There is no redness or heat and no definite pain or tenderness. The patella floats. There is $\frac{7}{8}$ in. increase in circumference of the knee. The temperature was 99. Leucocytosis, 23,000. Polymorphs 48%. Lymphocytes 52%.

Two days later the joint was aspirated and a serous discharge was obtained, which on culture was negative. The leg was placed in a plaster cast to fix the knee joint. Five days later the temperature rose to 105 and the next day to 105.4. The joint was then opened under novocain by an incision on the outer side of the joint, allowing the escape of a considerable quantity of cloudy fluid, at first, followed by a moderate amount of yellowish pus. A large piece of fibrin flake of a grayish color was also squeezed out, apparently from under the patella. The joint was not explored further, but was irrigated with hot salt solutions and drained by a rubber tube, which passed into the upper portion of the joint. The temperature immediately fell by crisis. The leg was placed in a plaster trough, which was kept on for thirty days. The wound required daily dressings, but there was never any great amount of discharge. The child's general condition steadily improved, and she was discharged home on the thirty-fourth day with the wound

healed, slight thickening about the joint capsule and good motion in the knee joint, which promised to become normal. The pus from the knee joint at the time of the operation showed pure pneumococci. A later culture was taken in an attempt to differentiate the strain or type of the pneumococcus, but the culture proved to be so contaminated that the attempt was abandoned.

X-rays taken of the two knees for comparison before operation and several weeks after, were to all appearances alike. About the joint there was a cloudy appearance as of a swollen capsule, and some indistinctness of bone, but no evidences of bone or cartilaginous involvement, either early or late. The epiphyses were normal.

The extraction of the fibrin flake was of interest, and apparently is a usual condition to be expected in joints infected with the pneumococci. The cocci apparently find lodgment in such flakes, and they should always be expressed by squeezing or by careful extraction if possible so as not to break them up any more than possible.

To sum up, these six cases represent various methods of infection by the pneumococcus, namely:—

1. From the mouth by way of a tooth infection.
2. By trauma without previous known pneumonia.
3. By a previous pneumonia followed by an otitis media.
4. By trauma followed by pneumonia and involvement of the joint in nine days.
5. Following several attacks of bronchopneumonia and immediately after an acute attack of otitis media.
6. Involvement of joint two weeks after an acute attack of lobar pneumonia. This case represents the only typical one.

All these cases had the diagnosis confirmed bacteriologically except Case 4, which, however, I included in this series on account of the improbability of its being anything else. The fluid in all these cases was rather thin and greenish yellow when the joint was first opened, but as it continued to drain at the time of the operation the heavier pus escaped. It was during this period that the fibrin flakes were expressed. The mortality was three out of six cases, 50%. The joints, so far as I have been able to determine, are practically normal in the two cases I have been able to follow.

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Clinical Department.

A PRELIMINARY REPORT OF THE RESULT OF WASSERMANN TESTS AS REPORTED FROM DIFFERENT LABORATORIES, CALLING ATTENTION TO A LITTLE NOB ON THE FRENUM OF THE UPPER LIP, WHICH MAY OR MAY NOT BE CHARACTERISTIC OF SYPHILIS.

BY O. D. PHELPS, M.D., WORCESTER, MASS.

FOR the past year the writer has had Wassermann tests done both for diagnosis and as check up for treatment by several different laboratories. Almost every salvarsan administered is accompanied by a Wassermann test; this is the routine on every patient. Each laboratory receives a specimen of the serum for examination, taken at the same time and kept under the same conditions and each laboratory examines the specimen on the same day.

Most specimens here submitted have been to three laboratories, many to four, many to two and a few to five. The result of 358 specimens tabulated for this consideration is as follows:—

FOUR LABORATORIES.

Of 113 bloods—68 agree; 45 disagree.
60.2% agree.
39.8% disagree.

THREE LABORATORIES.

Of 135 bloods—70 agree; 65 disagree.
51.9% agree.
48.1% disagree.

TWO LABORATORIES.

Of 110 bloods—72 agree; 38 disagree.
65.5% agree.
34.5% disagree.

In view of the above table, one might well ask the reliability of the test. The varying results reported in literature of blood from different laboratories and a chance difference in the report of a Wassermann in the experience of the writer are what stimulated this comparison. The table simply shows the delicacy of the test and how susceptible it is to variation in technic, and to differences in the blood as taken at different times.

Craig, working for the most part in the Government Laboratories of the U. S. Army at Fort Leavenworth, Kansas, finds that the only other diseases aside from syphilis which may cause a Wassermann to be positive are yaws, leprosy, relapsing fever, and febrile stage of certain malarial infections.

It is a fact that a positive Wassermann test done in a reliable laboratory and confirmed by a second examination is diagnostic of syphilis. As to a negative Wassermann very little reliance

can be placed on a single test. In early primary syphilis when the diagnosis is most needed, the reaction is often negative. The secondary stage is the one in which the Wassermann is most often positive.

The writer has observed the phenomenon of a Wassermann being reported negative in a case and the same to be reported strongly positive shortly after with no apparent reason.

Alcohol seems to have a distinct effect on the Wassermann reaction, in rendering it negative. A patient of the writer was seen in 1911 with an unmistakable macular rash, extending over face, chest, abdomen and extremities. The patient was accustomed to use beer constantly and each Wassermann report was negative. During all of his treatments, which have been more or less consistent up to last summer, but one out of several Wassermann tests has ever been positive. He yielded very nicely to salvarsan and mercurial treatments, but during his whole course we have been unable to depend on the Wassermann test to check up his progress.

For some time the writer has been observing a little tub, a nob on the frenum of the upper lip of patients. So far as known, nothing has been written of it, and it is probable that the nob is found as frequently among non-syphilitics as syphilitics.

The following observations have been made from 359 cases.

	Present.	Absent.	Present.	Absent.
			%	%
S-1	17	6	73.9	26.1
S-2	37	28	56.9	43.1
S-3	94	51	64.8	35.2
Total S's	148	85	63.5	36.5
U	48	21	69.5	30.5
Total G-U	196	106	65.0	35.0
Misc.	41	16	72.0	28.0
Total obser....	237	122	66.0	34.0

NOTE. S-1, S-2, S-3, denotes Primary, Secondary and Tertiary Syphilis. U refers to Urethritis.

Pathologically the nob is reported connective tissue covered by epithelium.

THE FEMUR OF AN IDIOPATHIC EPILEPTIC.

BY J. S. FOOTE, M.D., OMAHA, NEBRASKA.

Professor of Pathology, Creighton Medical College,
Omaha, Nebraska.

As the pathology of idiopathic epilepsy is obscure, the following case is interesting and suggestive:—

Male, age 40, giving a history of epilepsy from childhood, had been under observation for some years in one of our state institutions. On the day of his death he had twenty convulsions.

A three-inch middle piece of the femur was obtained for microscopical examination. After boiling the bone until the medullary contents were removed, a section through the middle of the piece was ground

to proper thinness and mounted. A drawing of the section was then made with the Edinger apparatus and appears below.



Section through the middle of the femur of an idiopathic Epileptic—age 40.

The wall of the bone varied in thickness from 1 mm. to 2 mm. The medullary surface was finely reticular, and the canal was filled with friable matter. The medullary index or ratio of the medullary canal to the bone was 27.7%. The average index of 139 other human femora was found to be 38%. The bone was extremely light and, in places, translucent.

Structure: The external circumferential lamellae were fragmentary. The narrow central ring was composed of small, irregularly shaped Haversian systems, some of which were senile.

The internal circumferential lamellae formed a narrow fragmentary ring around the medullary canal, indicating that the wall of the bone had never been any thicker.

The case is presented merely to call attention to the osseous system in idiopathic epilepsy.

Reports of Societies

TRANSACTIONS OF THE THIRTIETH ANNUAL MEETING OF THE ASSOCIATION OF AMERICAN PHYSICIANS.

HELD AT WASHINGTON, D. C., MAY 11, 12 AND 13, 1915.

(Concluded from page 365.)

Wednesday afternoon, May 12.

41

"The Significance of Aeroataxia and Proximal Ataxia of the Extremities in Differentiating Between Disease of the Peripheral Nerves and Spinal Cord Disease." By C. F. HOOVER, Cleveland, Ohio.

In a former communication it was shown that in ataxic states of the extremities two varieties may be differentiated: one in which the distal muscles are involved, called aeroataxia; another in which the proximal muscles are involved, called proximal ataxia. In a case of primary anaemia, stereognosis was preserved and no ataxia in the ordinary sense was observed; but extreme ataxia of the intrinsic muscles of the hands and feet was found. In 52

further cases of primary anaemia at the Lakeside Hospital acroataxia has been noted, with proximal ataxia added as a late manifestation. In lead and alcoholic ataxia, however, the relation of the time of appearance of the two forms is reversed.

In spinal cord disease, proximal ataxia appears much sooner than acroataxia: in the ataxia of the anaemic type, on the other hand, no Romberg sign may be elicited because the ilio-femoral muscles are not involved.

In a case of diabetes with apparent diabetic neuritis, the presence of proximal ataxia without acroataxia was noted; examination of the spinal fluid revealed tabes as the cause and the ataxia improved under antisyphilitic treatment.

The writer has been able to diagnose primary anaemia in patients over 50 by the presence of acroataxia and loss of vibratory sense independent of blood examination. In a man with an obstructive prostate there was a proximal ataxia without acroataxia. The spinal fluid being normal, the diagnosis of cancer of the prostate with metastasis in the cord was made and confirmed.

In a case of apparent primary anaemia, with a mass in the left hypochondrium, there was loss of reflexes and proximal ataxia without acroataxia; the diagnosis of hypernephroma with metastasis in the cord was made and confirmed.

42

"The Present Status of Hygiene or Public Health and its Future in America." By W. W. Ford, Baltimore, Md.

The growing demand for public health officers and for public instruction in hygiene makes it necessary to formulate the underlying principles which should be considered in meeting this demand.

Pettenkofer founded the science of public hygiene and in Germany and Austria his teachings received ready practical application, spreading thence largely all over Europe. As a result of his campaign the mortality from zymotic diseases fell. The great fruits of this work ripened in the decade 1870-1880, but with the advent of bacteriology Pettenkofer's work had a set back. Bacteriology became hygiene for a time, until lately when Pettenkofer's plan has been revived, modified by bacteriology.

In Great Britain, since the sanitary laws of 1848, public health matters have been on a sound basis, but the emphasis has been on public works, such as water supplies, drainage, sewage disposal, etc. Preventive medicine is the gift of France, but it has been twisted by the work of the Pasteur Institute. Thus it may be seen that the science of public health has been prominent and in the public consciousness of European countries for many years, and the subject is a major matter in the universities of Germany, Austria-Hungary, Great Britain and France. But it is still neglected in this country and chaotic ideas on the subject prevail. The Departments of Health in states and cities have long recognized the needs of the situation, but the national government still lags behind, notwithstanding the work done by the Public Health Service.

In the medical schools, teaching of hygiene was begun at the Woman's Medical College of Philadelphia in Pettenkofer's time. The subject has gradually appeared in the curricula of all medical schools but at this time it is a major subject in only five universities; a pitiable condition as compared with the situation abroad.

43

"The Alleged Relation Between Vaccine Virns and Post-Vaccination Tetanus." By JOHN F. ANDERSON, Washington, D. C.

Since 1902 the public health service has supervised the manufacture of and commerce in biological products. Among other things, it has conducted an investigation of the occurrence of tetanus following vaccination. Since 1904 the writer has studied this subject and the paper gives a summary of results.

There were four lines of study:

1. Study of actual cases, by personal investigation or by a delegated officer, with collection of data upon incubation period, kind and source of virus used, collateral circumstances, etc.

2. The incidence of tetanus among large groups vaccinated at the same time: army, navy, etc.

3. Examination of commercial vaccines for the presence of tetanus bacilli or spores.

4. Laboratory observations on animals vaccinated with virus infected with tetanus.

1. Forty-one cases of post-vaccination tetanus were studied. In no cases were tetanus spores found in virus from same stock as that used for the vaccinations. The incubation time was 9 to 20 days: mortality about 75%. The mortality was less in cases with incubation time of 10 days.

2. Among 385,000 persons vaccinated in U. S. Army there were 6 cases of tetanus, none of which had any relation to the vaccination.

- Among 200,000 persons vaccinated in U. S. Navy there were two cases of tetanus having no relation to vaccination.

3. Examination was made of enough virus to vaccinate 200,000. In no single instance was tetanus found.

4. Animals were vaccinated with virus containing large numbers of tetanus spores. Rhesus monkeys and guinea pigs, animals susceptible to both vaccine and tetanus, all escaped tetanus although the vaccination crusts sometimes contained spores. This fact leads to the belief that there is no danger even if virus does contain spores.

The conclusions reached:

1. Vaccine virus on the market does not contain tetanus spores.

2. Tetanus following vaccination depends upon accidental infection at the time of crust formation.

44

"Recent Application of Chemotherapy with Special Reference to the Action of Emetin Upon Endameba Buccalis, the Specific Cause of Alveolental Pyorrhea." By C. C. BASS, New Orleans, La.

It has been shown that the endameba buccalis is present in the lesions of all cases of Riggs' disease. This endameba can not be cultivated in vitro; it is necessary, therefore, to judge the effect of drugs upon the organism by observations on living individuals. The destructive effect of emetin on cultured amebae was demonstrated by Rogers, and he thought that the same effect could be demonstrated on pathogenic amebae.

The writer has evidence that emetin does poison endameba buccalis. The drug will kill living tissue cells if they are exposed long enough to a strong solution. If introduced into the blood stream of animals in sufficient dosage death follows. The minimum lethal dose in man is thought to be 6

grains intravenously. In determining dosage it is necessary to come well within safe bounds: one tenth the minimum lethal dose should be regarded as reasonably safe. Such a dose is sufficient to kill endamebae when exposed to that concentration in the serum. When emetin is used in half grain doses in Riggs' disease, endamebae disappear with varying rapidity; a few disappear after the first injection; a larger number after a second, and with increasing rapidity after repeated doses. Some cases are very resistant. Positively cured cases are hard to demonstrate but they may be free of amebae for months. Reinfestation takes place in some cases.

The food of endameba buccalis seems to be a certain cell to be found at the bottom of pus pockets; the lesions are probably produced by the efforts of the amebae to reach these cells and by the destruction of the cells. Emetin may produce its effect by interfering with the food supply of the amebae.

45

"Studies on Uric Acid Metabolism in Gout." By JOSEPH H. PRATT, Boston, Mass.

Folin first described a trustworthy method of estimating the uric acid in the blood. In 1913 the writer reported uric acid estimations in 9 cases of gout: since then he has had 7 additional cases under personal observation and has studied the blood. The disease is a rare one in this country; his cases had been few and no general conclusions could be offered. Some facts are offered, however.

On purin free diet, the average uric acid content of the blood of gouty patients was 3.7 mg. per 100 gm. blood. In normal individuals, on mixed diet the uric acid average is 1.8 mg. per 100 gm. blood; 2.5 mg. is the upper level in normal persons.

One cannot make the diagnosis of gout from a single examination of blood, because the uric acid in the blood may be normal at times in gout.

A single high uric acid finding is not sufficient for the diagnosis of gout, because it may be high in other diseases, even as high as 5.0 mg. per 100 gm. blood.

The blood of patients on rich purin diet has been studied; the sweetbread meal was used. One patient whose blood uric acid was 1.6 mg. (lowest in the literature) on the fourth day reached 4.0 mg. per 100 gm. blood.

There was a variable behavior in different cases: after the sweetbread meal there may be a drop in uric acid for a day or two, with later a sharp rise. In healthy persons there is a distinct rise in four hours after the meal.

It could not be suggested that the method will have any diagnostic value.

46

"Open Air Treatment of Pneumonia and Anemia in Children." By ROWLAND C. FREEMAN, New York, N. Y.

The paper gives the results of fresh air treatment of small children in Roosevelt Hospital. The best results, compared with controls in the ward, were in cold weather. No increase of blood pressure was noted as a result of out door treatment; the most marked results were increased color in cheeks, diminished cough, better sleep. There was reduced spread of contagion; there have been cases of measles on the roof without spread.

Greatest interest centred in three cases of blood abnormalities treated in this way. 1. A child with

simple anaemia (25% hemoglobin), bronchitis, and colitis. Red cell count of 280,000 went to above 1,000,000 in a surprisingly short time. This child had also Syr. Fer. Iodid, but the improvement was out of all proportion to the drug given.

2. A child with leukaemia had rapid improvement of lungs, spleen, and blood.

3. A child with splenic anaemia, showing normoblasts, megaloblasts, 60,000 white cells, etc. Improved rapidly on the roof; relapsed when returned to the ward, and improved again when put out of doors.

Summary of 120 cases of pneumonia treated in open air: 21 cases of uncomplicated lobar pneumonia had normal temperature in 3 days after admission. Mortality of lobar pneumonia cases 4.1%; 31 cases of broncho-pneumonia were normal 7 days after admission. Mortality in this form was 3.4%.

47

"A Brief Note on the Value of Pituitary Preparations (Posterior Lobe) in Acute Lobar Pneumonia." By S. SOLIS COHEN, Philadelphia, Pa.

Ordinarily we expect children under 12 to get well of acute lobar pneumonia, with only good nursing and, of course, open air. But occasionally treatment is required as in the case of a child just over 12, who came into the hospital with pneumonia; there was delayed resolution during which there was a tendency to collapse and it was necessary to use oxygen; this child was much helped by extract of the posterior lobe of the pituitary gland and survived a complicating pneumothorax.

When we find a specific biologic cure for pneumonia we shall be fortunate, but we shall still need to use tactical measures in connection with the general strategy. Pituitary extract will then be a valuable tactical aid. Pituitary substance raises the blood pressure. When we find the systolic pressure below the pulse rate there is danger. And when we find the diastolic pressure approaching the respiratory rate there is danger. In both cases pituitary extract will do good. It will also diminish dangerous tympanites.

Until we find an available specific, we must continue to employ skilfully fresh air, nursing, quinin, pituitrin. Even now, we have more cases of delayed resolution because more live to have it. This is best treated by the use of autogenous vaccines given by mouth.

48

"Magnesium Treatment of Tetanus." By J. AUER and S. J. MELTZER, New York, N. Y.

49

"The Hygiene of Aviators." By GEORGE M. KOBER, Washington, D. C.

50-52.

GROUP ON THYROTOXICOSIS.

53

"Pathognomonic Changes of the Cerebrospinal Fluid in Nervous Diseases." By JOSEPH COLLINS, New York, N. Y.

Although we do not know the origin of the spinal fluid, we do know something about its alterations in disease.

The fluid has been studied at the New York Neurological Institute in about 20,000 cases. Such examinations are useful in the study of cerebrospinal lesions due to the tubercle bacillus, to the diplococcus meningitidis, to the organism of epidemic poliomyelitis, and to the spirochaeta pallida.

We are now able to distinguish between meningo-vascular and the parenchymatous syphilitic lesions of the central nervous system, tabes being the type of the one and paresis of the other.

In 167 cases of tabes, there were 121 positive findings; the remaining cases had had very thorough antisyphilitic treatment. In 140 cases, there were pathognomonic signs in the fluid.

There are three types of tabes from the serological point of view: 1. Typical, classical type; 2. Hyperlymphocytic type, in which the meninges are also involved; 3. A type in which the Wassermann reaction is weak, the globulin contents low, cells number only about 20, and Fehling's solution is not always reduced.

In 85 cases of paresis, 53 were serologically typical: + Wassermann, modified pleocytosis, + + globulin, + Fehling's solution. A pathognomonic test is the reduction of colloidal gold; this test was positive in every case except one. This reaction was found to occur also in two instances in 27 cases of disseminated insular sclerosis, but in these paresis could not absolutely be ruled out.

Treatment affects the serological findings in both types of central nervous syphilis; many reports and histories of cases from hospitals in this country give no statement as to the effect of treatment on the fluid.

54

"Further Observations on Pain in Diaphragmatic Pleurisy." By JOSEPH A. CAPPS, Chicago, Ill.

Pain as symptomatic of pleural lesions had been studied by mechanically irritating the membrane in thoracentesis operations. The visceral layer is not responsive to pain; the parietal pleura is very responsive to irritation and sense of location is precise; the diaphragmatic pleura is sensitive but the pain is referred from the marginal area to the abdomen, from the central area to the neck. This experimental work has been supplemented by clinical observations on diaphragmatic pleurisy; 32 cases of simple pleurisy, 29 of pleuro-pneumonia. There was referred abdominal pain in 54 cases, of the same character as that produced experimentally. A phenomenon not noticed in experiments was that in 50% of the cases the point of maximum pain corresponded with the point of maximum tenderness to pressure. The most common points of referred pain in the abdomen are above and to the right or left of the navel.

There was referred neck pain in 31 cases. This had the same characteristics as the abdominal pain; the painful spots appear mostly along the ridge of the trapezius. In the neck the points of maximum pain and tenderness always coincide.

Nine of the cases were at first diagnosed appendicitis; two were operated with negative findings. Six were called cholecystitis, two operated with negative findings; two were called ulcer of stomach, one operated; two, abscess of liver, one operated; one, renal calculus; one, lumbago; one, abdominal inflammation of uncertain character.

Differential diagnostic criteria are given. Subphrenic inflammations give rise to direct pain as well as to referred abdominal pain; the neck pain

gives no evidence as between sub- and suprarenal inflammation.

Thursday morning, May 13.

55

"The Presentation of a Case of Herter's Infantilism." By M. HOWARD FUSSELL and W. B. BRAMLETT, Philadelphia, Pa.

In 1908 C. Herter reported five cases characterized by chronic gastro-intestinal intoxication, with retarded skeletal growth; there were present intestinal disturbances, a mild anemia, and atrophy of all the tissues of the body. The disease was believed to be due to a persistence of the infantile type of intestinal flora. It is not known whether the intestinal bacteria are responsible for the fact that calcium is not absorbed but is lost through the intestinal canal in the form of soap. The only effective treatment is dietetic; proteids are borne best; carbohydrates, worst. It was found that gelatin is the best form of protein, as it does not give rise to putrefactive products.

Fussell's case was given the following dietary: Breakfast, milk, gelatin, and one soda cracker; lunch, 6 oz. milk, gelatin and two soda crackers; dinner, straight beef, beef juice, and green vegetables. The child was nine and a half years old; 34 inches high; weight, 24 pounds. It had been treated for all sorts of conditions and was admitted to the hospital as a case of nephritis. Albuminuria cleared up with rest and diet. Wassermann negative in blood and spinal fluid. Radiographs of the wrists showed a development age of 2½-3 years, according to the Röth standard; this corresponded to weight, height and eruption of teeth. The temperature was elevated until put on the diet. There has been no change in the wrist bones, but the child is heavier, fatter, and stronger; it laughs, talks, and runs about; it has gained an inch and a half in height and 12 pounds in weight.

56

"Clinical Studies of Several Types of Acute Leukaemic States." By L. F. BARKER and W. A. BAETZER, Baltimore, Md.

The studies cover 21 cases* of acute leukaemia recently under treatment. The disease is recognized to be not only a change in the total cell count but also a specific change in the blood-making organs. Acute and chronic forms are seen: the acute cases die early as a rule; those of the chronic variety live longer. The chronic cases may begin with acute manifestations, or the disease after a long chronic course may have an abrupt acute termination.

The acute cases are more often recognized now because the blood is oftener studied. They are sometimes mistaken for acute sepsis, but in any such cases associated with stomatitis and hemorrhagic diathesis, acute leukaemia should be suspected. It is necessary for diagnosis to consider both the clinical course and the blood. The exact type may require post mortem histological study for classification. There may be at the beginning and end not a leukaemia but a leukopenia. Cases, with blood pictures, are given in detail.

57

"Colloid Carcinoma of the Peritoneum." By THOMAS McCRAE and W. M. L. COPLIN, Philadelphia, Pa.

The case was presented on account of the unique pathological and clinical pictures it furnishes. The patient was a man who for 4 years suffered from ascites; there were no diagnostic evidences available until the end of the 3rd year when fluid withdrawn by tapping was found to contain colloid material resembling tapioca grains. In the last month of life freely movable tumors could be felt in the abdomen. A terminal symptom was obstinate diarrhea; food taken could be recognized in the stools 3 or 4 hours later. The salient features were: the presence of a marked ascites for 4 years with preservation of excellent health; the finding of colloid material in the ascitic fluid; the development of movable tumors. (Presented by Dr. McCrae)

Dr. Coplin exhibited photomicrographs of the tumors. The interesting feature was the retrogression of the epithelial inclusions with the production of colloid.

58

"Spontaneous (Non-Tubercular) Pneumothorax." By ELSWORTH SMITH, St. Louis, Mo.

59

"Observations by Krogh's Method of Blood Flow in Human Subjects." By J. H. MEANS and L. H. NEWBURGH, Boston, Mass.

The observations were undertaken to determine the effect of caffeine on blood flow. The method of Krogh and Libhard was used. Figures and tables are given setting forth the details of the work.

The average coefficient of utilization of oxygen is 41%. In trained athletes the coefficient is higher than normal, showing that the circulation is very economical. In a case with double aortic and mitral disease the coefficient was found to be normal. Normal subjects at rest when treated with caffeine sodio-salicylate were found to have a great increase of blood flow without increase of oxygen absorption. Under measured work, the increase of blood flow and oxygen utilization is parallel. Caffeine caused no marked change in this. In work, the increased demand for blood is met first by increased ventricular output up to a certain point when increased pulse rate takes up the additional burden.

60

"Leukaemic Lymphadenosis." By T. B. FUTCHER, Baltimore, Md.

The patient was a single woman, aged 58. Her symptoms were dyspnoea and weakness with enlargement of axillary, cervical, inguinal and post-peritoneal glands. The blood count found 7,000 leukocytes, 67% of which were large and small lymphocytes. The heart and kidneys were normal. Diagnosis rested between Hodgkin's disease and an atypical leukaemia. The leukocytes during her stay in the hospital ranged between 7,000 and 14,000 in number; large and small lymphocytes constituted from 67% to 90%. Wassermann and tuberculin reactions were negative. A gland was removed: cultures were negative; histologically, it showed a chronic lymphadenosis, resembling lymphosarcoma. Hodgkin's disease was not simulated. Treatment with eacodylate of soda resulted in clinical improvement but did not improve the blood. There is now a metastatic nodule in the eyelid. The case must be regarded as one of Naegeli's leukaemic lymphadenosis, in which there is no change in the total white cell count, but a great change in

the differential picture. The disease is very chronic and is characterized by a tendency to the development of metastases in the skin. The course may abruptly become acute with an early fatal termination.

61

"The Condition of Patients after Partial or Complete Resection of the Colon." By J. C. BLOODGOOD, (by invitation), Baltimore, Md.

Comparison is made between two groups of cases in which resection of a small portion of the ileum and the right colon to the transverse portion has been done. 1. Those cases in which the operation was done for local disease, ulcer or cancer; 2. Those in which the resection was done for a more general condition, *i. e.*, thinning of walls, dilatation, atony.

As to immediate results: in resection for local disease the patients are apt to have diarrhea for a few months; in resection for the general condition, the remaining colon being abnormal, there is no diarrhea. In local disease cases, bladder irritation accompanies the diarrhea and disappears with it. Bladder irritation does not occur after resection in the atonic cases. Cases in which the operation was done for local disease have never come for secondary operation. When resection was undertaken for the atonic disease, the same technic which had been satisfactory formerly was chosen in the first cases.

Out of 28 personal cases of the atonic type, 18 are well; that is to say they have gained weight, required no cathartics, have no indigestion, no adhesion pains, etc. The convalescence is slow, (*it* is rapid after ulcer and cancer cases) and may require 2 years. The majority of the cases are women and are able to do their own house work.

After four years' observation of resection in cases of atonic disease and seven years observation of local disease cases, it is evident that removing the right colon does no harm.

What of the failures in the atonic cases? Seven were failures in that they had post operative discomfort and pain. Reoperated cases indicate that the failures were due to the use of side to side anastomosis; the two blind extremities become tense and painful diverticula; this does not happen in ulcer and cancer cases. In the last three cases end to side anastomosis has been employed.

The paper does not discuss the justifiability of the operation, but undertakes to show that no harm results from resecting the right colon; and that the technic of the operation in atonic cases must be especially careful.

That resection has an effect on the atony is shown by a case in which there was vomiting, with food retention in stomach and stasis in colon; 18 months after the operation there was no vomiting and there was hypermotility of stomach and colon. All of the atonic cases had been referred by medical colleagues; all had been treated thoroughly; all other means of relief had been tried and had failed. All of the 16 successful cases are much improved; but they are not robust. Their atony is a terminal condition which might have been prevented by proper medical treatment.

62

"The Fate of Fats in the Blood Stream." By WM. CHARLES WHITE, Pittsburgh, Pa.

Light fats were injected into the blood stream

in an effort to learn why tubercle bacilli lodge preferably in the upper lobes of the lungs. Cream was injected into the ear vein of rabbits. It is rapidly set aside into the lymphatics and concentrated in the cisterna chyli. There was no evidence that any of the fat was conveyed into any of the organs by the blood vessels. All of the fat is held up in the pulmonary circulation and it does not get out again into the peripheral circulation. It is found later not only in the depots of fat but also outside the central veins in the lobules of the liver. Suggestion is made of a lymphatic circulation in the liver connected with the cisterna chyli.

63

"An Unusual Type of Pulmonary Mycosis." By THOMAS R. BOOGS and M. C. PINCOFFS, Baltimore, Md.

The case was one of a mycotic lung infection not heretofore reported in the United States. A native American girl, a corn scraper in a canning factory, sought relief for a boil-like lesion under the arm. She was found to have cancer of the breast on the same side; there was weakness, numbness and tingling of the arm, evidences of circulatory obstruction in the axilla. Operation for breast cancer and axillary condition was done; no evidence of pulmonary disease was noticed. Later she entered the City Hospital febrile, prostrated and with profuse expectoration of sputum resembling that from liver abscess. In the sputum were found mycelium and spores. The course was rapidly downward; on the fifth day hemoptysis occurred, cough ceased and later hemorrhage from axillary sinus marked the end. Autopsy revealed cavity communicating with pleura and sinus; the lung was in organized grey hepatization.

The organism grew abundantly on culturing and was found to be a moniliform yeast. It is pathogenic to animals when inoculated and when given intratracheally; not when given by mouth. It is easily overlooked in the sputum by ordinary staining methods; it is necessary to culture by the plate method to recover the organism.

64

"Studies in Monilia of the Digestive Tract in Porto Rico." BY BAILEY K. ASHFORD, San Juan, P. R.

(Similar paper, *Journal A. M. A.*, June 5, 1915.)

Clinical and pathological examinations have shown a close connection between sprue and the use of diseased yeast and undercooked bread. A monilia, differing from monilia albicans, has been grown from the tongue of patients suffering from sprue in 100% of the cases examined. It has been grown from the tongue of patients with suggestive histories of sprue in the past in 21% of the cases. In 31 cases free of symptoms or history of sprue, only one yielded the monilia from tongue culture. The organism has been found in cases of so-called thrush, in many cases of ill-defined illness characterized by fermentative dyspepsia, and in 100% of cases of true sprue; these facts lead to the suggestion that there exist tongue sprue, intestinal sprue, and a combination, complete or true sprue.

The monilia in question has been found in the centre of loaves of bread; the baker's yeast in Porto Rico is subject to variations from type; sprue is a

disease of urban communities where bread is eaten, being extremely rare in rural districts where bread is not a part of the dietary. Dr. Gonzales Martinez has devised a complement fixation test which has been found specific in many cases of sprue. Sprue is controlled, and in many cases cured, by the use of a non-carbohydrate diet, in which the monilia will not grow.

Book Reviews.

Encyclopedie Medica. Second edition, under the general editorship of J. W. BALLANTYNE, M.D., C.M., F.R.C.P.E. Vol. I. Edinburgh and London: W. Green and Son, Ltd. 1915.

This volume opens the publication of the second edition of one of the leading standard medical encyclopedias. The general plan of the work and the mode of arrangement of the articles which characterized the first issue have been retained as far as possible. In the first volume, which includes the subjects from abattoirs to asphyxia, many new articles have been added on such topics, for example, as acidosis, aeromegaly, adenoids, amebiasis, ankylostomiasis, ante-natal pathology and ascites. Many new drugs have also been discussed, including those appearing in the British pharmacopeia of 1914. In the subject of anatomy there is presented a critical discussion of the Basle anatomic nomenclature, with an elaborate table giving in parallel columns the old terminology, the Basle terminology, and a suggested English equivalent for the latter. This table should be of especial value to teachers and to practitioners who are endeavoring to replace their old terminology by the new, and who prefer English phraseology to the Latin terms of the Basle nomenclature. For the present the old anatomic terms have been retained in the text of the encyclopedia, but it is suggested that in a future edition these may be wholly replaced by the B. N. A. terms. The present article is a valuable aid in establishing the transition during this period of anatomic interregnum.

Naturally many new authors appear in this edition, men for the most part of international eminence in the British profession. Where older work has been retained it has been thoroughly revised. The volume is illustrated with a number of excellent text figures and full page plates, several of the latter being in colors. At the close of many of the articles is presented a bibliography on the subject in question. The first volume presents abundant promise for the continuation of an important and valuable work of medical reference.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

EDUCATION AND EUGENICS.

In the issue of the JOURNAL for August 26, we commented editorially on some of the eugenic, or rather dysgenic, effects of modern methods of warfare. Two writers in recent issues of a contemporary daily publication* have similarly commented on the dysgenic effects of certain modern educational and social movements. Without reviewing the entire scope and bearing of these movements, it may be of interest to discuss briefly, in the light of previous evolutionary experience, the possible result of some of these influences on the future of human civilization, limiting the consideration to those proceeding from the so-called higher, or collegiate, education.

Without discussing exact statistics, it may fairly be acknowledged that, with the notable exception of certain families, collegiate education, among both men and women, appears to lead to a marked decrease in racial fecundity.

Probably this is because the various recognized factors of decreasing fecundity among civilized peoples operate more intensely upon the highly educated than upon others. These influences at present seem to affect college-bred women even more than men, possibly because of their more limited reproductive period and their greater temptations away from marriage.

In an article in the *Journal of the American Statistical Association* for June, 1914, Nellie S. Nearing concludes as follows her investigation of the then available marriage statistics of the women graduates of colleges in America:—

"The decade 1890 to 1899 is undoubtedly the most fairly representative (as respects marriage rates). On the one hand, it falls within the epoch which accepted college education for women and looked upon it as thoroughly respectable. On the other hand, the graduates in the latest graduating class (class of 1899) are now at least 35 years of age. The marriage record of the decade is therefore fairly complete.

"The eight colleges graduating more than 100 students each during the decade (Earlham, Swarthmore, Wilson, Indiana, Vassar, Radcliffe, Wellesley and Bryn Mawr), show fairly uniform marriage rates. The lowest is Bryn Mawr, 41.8 per cent. (294 graduates), and the highest Swarthmore, 58.7 per cent. (148 graduates). It is probable that the marriage rate for this decade is fairly representative of the tendency in the modern women's college world."

Moreover, the average fecundity of married college graduates is low. Let us quote only two examples from the paper of the authors above mentioned:—

"The marriage rate of Yale graduates had declined to 66.3 per cent. for the period 1867-86, a period long enough to furnish a basis, and Prof. William B. Bailey, the statistician, has calculated from the class records that the average number of children born to the married graduates of these classes when all their families are complete is 2.3. (*Yale Review*, November, 1908, p. 337).

"The graduates of 1870-89 at Vassar and of 1880-89 at Wellesley numbered 1277, and had borne by 1912, when the members of the youngest class would average 45 years of age and their families be complete, a total of 1197 children, or 93.7 for each hundred graduates.

"So that every hundred Yale graduates produce 152.5 children and every hundred Vassar and Wellesley graduates produce 93.7 children."

Whatever the causes, the fact seems to remain that, for better or for worse, the members of the more highly educated class in America are barely holding their own genetically, cer-

* *Boston Herald*, Aug. 29, 1915, page 6, and Sept. 6, 1915, page 7.

tainly not showing the normal reproductive increase, probably being steadily eliminated racially and replaced by newer stocks without an ancestry of education.

From this phenomenon the authors draw most gloomy eugenic conclusions. The best stock is constantly perishing and being succeeded by the less worthy. There thus tends to be established "an unnatural selection of the fittest to die and the unfittest to survive."

Doubtless these are indeed considerations to give us pause, yet perhaps the situation is not so serious as it may appear. One crux of the question lies in the definition of fitness. Fitness to survive is not a matter of intellectual, physical or moral qualities alone, but of that combination of the three which happens to be best adapted to meet the conditions of existing environment. Successful racial, class or family fecundity is therefore dependent on qualities belonging to all these groups. Now, as man, like all other forms of life past and present, pursues his evolutionary course, he is constantly encountering new environmental conditions, and in the process of adaption to these conditions, it is inevitable that many, often otherwise highly valuable and efficient stocks, should perish, until that one has been selected to survive which can best meet the new demands. This may seem wasteful, but the infallible natural method seems to be one of ultimate conservation though apparent prodigality.

Education is one of the more recent of these newer environmental conditions which the human race has encountered, and we are now witnessing the process of selective adaptation thereto. The process is perilously destructive, but those who are in the forefront of battle must expect the highest casualties. Doubtless many stocks of high arboreal efficiency perished in the transition to the erect bipedal terrestrigrade habit. Ultimately the transition was successfully made and proved worth while, though its physical evil effects are still observable in tendencies to hernia and ptosis. The same will probably prove true of higher education: it is dangerous, but on the whole its advantages will outweigh its disadvantages, even eugenically. In time, probably, only those will survive who really desire offspring, and the superior conditions and heredity which such persons, as parents, are likely to provide for their descendants, may prove an immense and controlling evolutionary advantage.

Lamentable though it may appear, racial experience indicates that the constant perishing of valuable stocks is not an irretrievable calamity. This is the price of evolution, as "blood is the price of admiralty." Through all past time, natural process has succeeded in steadily advancing the quality of its product from crude material. For though the fine stock may perish as such, its achievement for the race is not necessarily lost. Each generation of mankind, whatever its discrete eugenic or dysgenic antecedence, is still collectively

"Heir of all the ages
In the foremost files of time."

—————

TUBERCULOSIS CONFERENCES.

It is announced by the National Association for the Study and Prevention of Tuberculosis that a series of five sectional conferences has been arranged to take place during the coming fall. These conferences will be held respectively at Indianapolis, Ind., El Paso, Tex., Columbia, S. C., Springfield, Mass., and Albany, N.Y. The chief subjects for discussion at each will be the various methods of carrying out more effectively both by physician and by the laity the national movement for the control and suppression of tuberculosis.

"The Indianapolis meeting, to be held September 29th, 30th and October 1st, will be known as the Mississippi Valley Tuberculosis Conference and will include the states of Ohio, Indiana, Illinois, Michigan, Wisconsin, Kentucky, Tennessee, Arkansas, Missouri, Iowa, Minnesota, Kansas, Nebraska, South Dakota, North Dakota, Montana, Wyoming and Colorado.

At El Paso the Southwestern Health Conference will meet September 27th to October 1st and will discuss not only tuberculosis, but other health subjects. This conference includes Texas, Oklahoma, New Mexico, Arizona, California, Nevada, Utah and Colorado.

The Southern Tuberculosis Conference at Columbia will meet October 8th and 9th, and will devote considerable attention to the problem of the tuberculous negro. The states included in this group are Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and West Virginia.

The New England Tuberculosis Conference will embrace the six states of Maine, New Hampshire, Vermont, Massachusetts, Connecticut and Rhode Island. This conference will be held on October 22nd and 23rd.

The North Atlantic Tuberculosis Conference will be held at Albany during the week of November 1st. It will take in the states of New York, Pennsylvania, New Jersey, Maryland, Delaware and the District of Columbia."

The New England Conference, which is the second to be held in this district, is to be under the immediate administration of the Massachusetts Anti-Tuberculosis League, and a cordial invitation is extended to all physicians to attend the sessions and take part in the discussion. The purposes of the conference are to bring together anti-tuberculosis workers, to discuss matters of special interest to the New England States, and to bring the facilities and aid of the National Association for the Study and Prevention of Tuberculosis more closely to bear on the problems involved. The following is a preliminary tentative program of the sessions of the New England Conference. The complete program will be published in a later issue of the JOURNAL.

FIRST SESSION.

Programs of Anti-Tuberculosis Work.

1. For cities of 100,000 or over.
2. For cities of less than 100,000.
3. For small towns and country communities.

SECOND SESSION.

Red Cross Seal Sales Methods.

An informal discussion will take place at a dinner session.

THIRD SESSION.

Industry and Tuberculosis.

1. The medical examination of employees.
2. Employees' relief and aid associations.
3. Insurance against tuberculosis.

FOURTH SESSION.

Methods of Anti-Tuberculosis Work.

1. Educational methods.
2. Nursing.
3. Dispensaries.
4. Institutions.

FIFTH SESSION.

The Diagnosis of Incipient Cases of Pulmonary Tuberculosis.

1. Lecture on "What the general practitioner should know about tuberculosis."
 2. Clinical demonstration, showing how to detect early tuberculosis.
- (This session may be held simultaneously with one of the other sessions and will be arranged especially for physicians.)

The National Association has arranged for expert speakers to present various subjects and lead in the discussion. The officers of this second New England Tuberculosis Conference are as follows:—

PRESIDENT.

Dr. Stephen J. Maher, New Haven, Connecticut.

VICE PRESIDENTS.

Hon. Redfield Proctor, Proctor, Vermont.

Dr. Estes Nichols, Hebron, Maine.

Dr. Harry Lee Barnes, Wallum Lake, Rhode Island.

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Dr. David R. Lyman, Wallingford, Connecticut.

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Seymour H. Stone,
4 Joy Street, Boston, Massachusetts.

It is earnestly to be hoped that there will be a large attendance at this local New England Conference, as well as at all the others of the series, on the part not only of physicians but of all persons interested in public welfare work. Any communications or suggestions should be addressed to the local secretary, Mr. Stone, or to Mr. Philip P. Jacobs, the assistant secretary of the National Association.



PHYSICAL TYPES AND PROFESSIONAL EFFICIENCY.

As the leading article in the issue of the JOURNAL for March 4, 1915, (Vol. CLXXII, page 322) we presented the first of a projected series of papers by Dr. John Bryant of Boston, on the carnivorous and herbivorous types in man, and the possibility and clinical utility of their recognition. In his Shattuck Lecture before the Massachusetts Medical Society, published in the issue of the JOURNAL for June 17, 1915 (Vol. CLXXII, page 881), Dr. Joel E. Goldthwait, of this city, also selected for discussion certain other aspects of this important subject. In the present issue of the JOURNAL we take pleasure in publishing the second paper of Dr. Bryant's series, devoted to certain further

general considerations, especially with reference to the association of the various diatheses with the contrasted physical types, the evolutionary history of these types, their characteristics, and their practical relations to education, employment, insurance liability and liability to disease.

In his discussion of the relation between sex and physical type it seems that perhaps Dr. Bryant errs in suggesting that the herbivorous feminine type is more suited to child bearing than the carnivorous. As a matter of fact, we believe that the experience of obstetricians is to the contrary. It is true that the carnivorous type is probably liable to a wider variety of complications during pregnancy and parturition; yet, as a matter of experience, unaccountable dystocia seems more likely to arise in the presence of what would appear normal conditions among herbivores than among carnivores.

The mere fact that on the whole the carnivorous type is outstripping the herbivorous is evidence that, under the existing conditions of civilization at any rate, nature is apparently slowly exterminating the herbivore in favor of the more easily prolific carnivore. To be sure, the increasing employment of Caesarean section offers a possibility of escape from the reproductive perils particularly affecting the herbivorous type, just as its universal adoption might ultimately affect the race as radically as did the assumption of the erect posture. Until this remote contingency, however, becomes operative, it seems that the herbivorous feminine type must, from the obstetric standpoint, be regarded as less successful and desirable of perpetuation than the carnivorous.

If an intelligent recognition and consideration of physical types be advantageous in the selection of right occupation for the individual, as Dr. Bryant suggests, it is obvious these tests must be applied with considerable special knowledge and discretion. As in all application of theories, generalization is dangerous. As a matter of fact, such recognition of type has already been applied, more or less unconsciously, by individuals for themselves and by others for them, as Dr. Bryant relates in the instance of the government service employees. Probably the selection of men for the manual and mechanical handicrafts might be more reliably made on the basis of physical type than for the professional and intellectual occupations. Such selection, however, has in the past been made with more or less rough accuracy on the basis

of phrenology, which, after all, is but a crude way of recognizing unconsciously by the head alone the physical type of the individual. For instance, it has been said that a round faced boy (that is to say, a herbivore) should be made a banker or business man, whereas a long faced boy (that is, a carnivore) should be trained as a lawyer, a physician or a teacher. Any method of selection for the professions, however, on the basis of physical type alone, is liable to overlook the important possibility, arising as a result of mixed heredity, that a human being of ally associated with the carnivore and vice versa. Instances of such mental and physical mixture occur with sufficient frequency to make it undesirable to apply the rule of physical type as a rule of thumb. Indeed it is doubtful if any rule should be so applied.

These observations are suggested not as contradictions, but by way of further comment on Dr. Bryant's interesting and important work. In his further study of the questions associated with the differentiation of human physical types he will be more particularly concerned with the relations of these types and of the diatheses based upon them to various clinical phenomena of medical importance in the recognition and treatment of disease. The possibility and utility of such recognition is probably even greater and presents as valuable opportunities in medical practice where physical conditions are chiefly concerned as in the determination of prospective professional efficiency in the individual.

THE DE-NARCOTIZATION OF TOBACCO.

IN the issue of the JOURNAL for August 19, we commented editorially on the possibility of the de-alcoholization of beverages as a preventive of inebriety. It now appears that a similar project is in operation for the de-narcotization of tobacco by the removal of its nicotine to such an extent as to make it practically non-toxic without destroying its flavor or pleasant properties upon consumption. The experiments to this end have been performed during the past three years at the United States Agricultural Station in Landisville, Pennsylvania.* Instead of re-

* This work has been in charge of Dr. W. W. Gardner of the United States Bureau of Plant Industry.

moving the nicotine from the grown leaf, however, the method adopted is a process of cultural selection. Three years ago a number of tobacco stocks were analyzed and found to have an average nicotine content of 3.5%. The seed from the plant having the lowest content was selected and this process repeated each year. Already the nicotine content has by this means been reduced to 1.3% and it seems conceivably possible by a continuation of the process to produce a strain of tobacco which should be practically free from nicotine and, therefore, non-toxic and harmless.

If this supposition be true, it would appear that the de-narcotization of tobacco may be as practicable a possibility as the de-alcoholization of vinous beverages,—processes which, if really feasible, should make unnecessary reforms without which the higher progress of mankind could hardly be attained.

MEDICAL NOTES.

ONE HUNDRED AND FIFTY-EIGHT LIVES SAVED IN SPITE OF HOT WEATHER.—Despite the hot weather record, the death-rate in New York City for the week ending Aug. 21 was 1.42 per thousand lower than during the corresponding week of 1914. In other words had the death-rate of the corresponding week of 1914 prevailed during the past week there would have been 1480 deaths instead of 1322, a saving of 158 lives. The death-rate for the first week was 11.88 as compared with 13.30 for the week ending Aug. 15, 1914. The following causes of death showed a decrease, to wit: digestive diseases, heart disease, tuberculosis (other than pulmonary), Bright's disease, diseases of the nervous system and violence. During the past week 348 infants under one year died, exactly the same number that died during the corresponding week of last year; but when it is considered that there are a larger number of infants under one year in the present population, it is evident that a material reduction has been effected. The campaign against mortality is surely bearing fruit. Mothers are learning how to feed, how to dress and care for their infants during the warm weather. The deaths of children under five show a slight actual increase over last year. This is due to the greater prevalence this year of several of the contagious diseases. There is a material saving in the lives of persons over sixty-five, only 188 being reported from this group as against 231 last year. The death-rate for the first thirty-three weeks of 1915 was 13.75 as compared to 14.19 for the corresponding period of 1914.

A FURTHER SAVING OF LIVES.—The death rate in New York for the week ending Aug. 22, was .63 lower than the death rate for the corresponding week of last year. This decrease amounts to a saving of seventy lives.

The total number of deaths was 1,366 with a rate of 12.27 against 1,381 deaths and a rate of 12.90 during the week ending August 22, 1914.

The deaths from sun-stroke were 75% fewer than during the third week of August of last year. The gospel of the summer hygiene is undoubtedly bearing fruit. The citizens of New York are not only learning to care for their infants properly, but likewise to care for themselves, to regulate their diet, to abstain from alcoholic drinks, to dress coolly and bathe often.

The only disease showing a noteworthy increase during the past week was typhoid fever. Six deaths more were attributed to this disease than during the corresponding week of last year and six more than during the previous week of this year.

The deaths of children under five years of age of diarrheal diseases showed a slight actual increase, but this is to be accounted for by the increased number of inhabitants in the city at this age.

Deaths from measles were fewer than during the corresponding week of last year—the first week since March 27 that the weekly death toll of this disease was lower than that recorded last year. Indeed, this decrease marks the end of the epidemic of measles that prevailed throughout the city since last winter.

The death rate for the first 34 weeks of 1915 was 13.68 as compared with a death rate of 14.16 for the corresponding period of last year.

FOOT AND MOUTH QUARANTINE.—Report from Washington, D.C., states that by an order of the Department of Agriculture, effective on August 30, the federal quarantine against foot and mouth disease was raised in Saginaw County, Michigan, Ford and Henry Counties, Illinois, and the entire state of Massachusetts. The quarantine at West Philadelphia is modified to permit the handling of cattle for export and the restricted areas are reduced in Indiana and Minnesota.

BUBONIC PLAGUE IN HAVANA.—On August 17, a case of bubonic plague was reported at Havana, Cuba, the first recorded since the outbreak in that city last winter.

TYPHOID IN BUFFALO.—Report from Buffalo, N. Y., states that, on Aug. 18, there were reported in that city 12 new cases of typhoid fever, the largest number ever recorded there in a single day.

PREVALENCE OF MENINGITIS, POLIOMYELITIS, SMALLPOX AND TYPHOID.—The weekly report of

the United States Public Health Service for August 29, 1915, states that during the month of July there were reported in Maryland ten cases of cerebrospinal meningitis, seventeen of polio-myelitis and 305 of typhoid fever. During the same period there were reported in Wisconsin six cases of meningitis, 60 of smallpox and 19 of typhoid.

SCARLET FEVER IN BELFAST.—During the spring and summer of 1915 there has been a prolonged epidemic in Belfast, Ireland, of scarlet fever, which has apparently become endemic in that city. Report on August third states that of 158 cases of infectious disease notified between June 20 and July 17, 131 were scarlet fever.

CANNING COMPOUNDS DANGEROUS TO HEALTH.—Information has come to the Department of Agriculture that the canning season has brought the usual demand on the part of housewives for salicylic and boric acid. These preparations are sometimes sold in the form of powder under various trade names and are recommended by the promoters for use in preserving canned goods in home canning. In the directions for use, the housewife is told to fill the jar with the fruit or vegetables, cover with water, and add a teaspoonful of the preserving powder. While it is true that these compounds may retard the decay of the fruit or vegetable, it is pointed out by the experts of the Department that their use may be attended by serious disturbances of health. Salicylic acid is well known as a poisonous substance, and one of the evils which may accompany its use is derangement of the digestion. It is, therefore, plain that its extensive use in food may lead to disturbance of digestion and health.

The Federal Food and Drugs Act prohibits the use of harmful preservatives in foods that enter interstate commerce. The food law of nearly every state in the union forbids the sale within the state of foods that have been preserved with harmful substances. Neither the federal or state food laws apply to foods that are canned in the home and consumed there. It would seem, however, that the housewife would not knowingly use, in the foods she provides for her family, substances that she could not use in foods for sale without violating the law, because these substances are injurious to health.

Fruits and vegetables can be kept indefinitely if they are sterilized by heat and properly sealed, and there is no excuse, in the opinion of the experts of the Department, for running any risk by using preserving powders, which may be injurious to health. The use of such powders in addition to the possible injury to health, encourages uncleanly or careless work in canning. Reliance is placed in the efficacy of the preserving compound instead of upon cleanliness and heat.

The Department has issued bulletins that give specific directions for the preserving and canning of fruits and vegetables without the use of preserving powders or canning compounds. These bulletins may be obtained without cost from the Department of Agriculture.

COMPLETION OF CINCINNATI HOSPITAL.—After about four years spent in construction, the new Cincinnati Hospital is ready for occupancy. It was planned by a special commission of physicians who arranged that it should incorporate all that is desirable in modern hospital building. Its total cost was about \$4,000,000. It occupies 65 acres of land and is made up of 45 wards containing 900 beds. The department of contagious diseases is a separate hospital, having its own wards and administration building. The spacious grounds have been utilized for tennis courts, baseball grounds and parks.

PANAMA-PACIFIC DENTAL CONGRESS.—On September 9, there came to a close the Panama-Pacific Dental Congress which has been in session since August 30, at San Francisco, with an attendance of 5,000 members from every state in the Union and 26 foreign countries. A total of 175 papers was presented at its meetings.

AMERICAN VETERINARY MEDICAL ASSOCIATION.—The fifty-first annual convention of the American Veterinary Medical Association was opened on August 30, at Oakland, Cal. The principal subject of discussion was the control of foot and mouth disease.

NATIONAL EDUCATIONAL ASSOCIATION.—On August 17, at the annual convention of the National Educational Association held in Oakland, California, a paper on "Child Welfare and Rural Schools," was presented by Dr. Thomas D. Wood of Columbia University, New York City, who pointed out that of the 20,000,000 school children of the United States about one-half are in attendance at rural schools. It is surprising that these children are less healthy and present more physical defects than city school children, including those of the slums.

"The rural school, from the standpoint of health and general fitness for its important use, is the worst type of building in the whole country, including not only all types of buildings used for human beings but also those used for livestock and all domestic animals. Rural schools are on the average less adequate for their use than prisons, asylums, almshouses, stables, dairy barns, pigpens, chicken houses, dog kennels.

"Necessary provisions for the welfare of rural school children should include the following:

"(a) Sanitary and attractive schoolhouses and grounds.

"(b) Teachers better trained and better paid.

"(c) Health examinations, including dental inspection, once a year.

"(d) Health care in the schools including health instruction, warm school lunches, tooth brush drills and training in all health habits.

"(e) Correction of injurious physical defects by school doctors, health clinics, district nurses etc.

"(f) Coöperation of all available agencies for promotion of health and welfare of country school children."

ALLEGHANY GENERAL HOSPITAL.—It is announced that the children of the late William H. Singer of Pittsburgh, Pa., will erect, equip and endow, in his memory, at a cost of \$400,000, a laboratory in connection with the Alleghany General Hospital for investigations into the origin of disease.

EUROPEAN WAR NOTES.

CHOLERA IN AUSTRIA.—Report from Zurich, Switzerland, by way of London, on August 24, states that on August 19, there were in Austria 1566 cases of Asiatic cholera.

A CASE OF CARDIAC SURGERY.—In a recent issue of the *Revue Scientifique* is described an unusual case of cardiac surgery reported before the French Academy of Medicine by Dr. Beau-senat, an army surgeon. The patient, a sergeant in the French army, was struck on October 1, 1914, at Saint Hubert, in the Argonne, by a fragment of a hand grenade, which pierced the abdominal wall, diaphragm, pericardium, heart muscle, and lodged in the cavity of the right ventricle. The original wound healed, but the presence of the foreign body was revealed by x-ray. On February 17, 1915, the fragment was removed by direct incision through the cardiac wall. It was found free in the ventricular cavity, whence it was withdrawn with forceps. It measured $\frac{3}{5}$ x $1\frac{1}{2}$ inch, and weighed 1.5 grams. Convalescence was complicated by angina, slight pyrexia and pleuritis; but the sergeant recovered and was returned to duty on March 17. This case is considered probably unique in the duration of time that the fragment remained in the heart.

THE STERILIZATION OF DRINKING WATER.—It is reported that Drs. Vincent and Gaillard of the Academy of Medicine, Paris, have, after repeated experiments, succeeded in perfecting a method whereby the drinking water of the French soldiers may be rendered free from pathogenic germs. A tablet of three to four milligrammes is made up of hypochlorite of lime and common salt in proportion of fifteen milligrammes of the former to eight centigrammes of the latter. This tablet is sufficient to sterilize one litre of water in fifteen minutes' time. In consideration of the difficulty of the army to provide safe drinking water for its soldiers under all circumstances, this convenient and simple method has much to commend it.

PESTILENCE IN BELLIGERENT COUNTRIES.—During the week ended July 17 one fatal case of typhus fever was reported at La Rochelle, France, and five cases of Asiatic cholera in Silesia, Germany. During the week ended June 12 seventy-five cases of cholera were reported in Moscow, Russia. One case of cholera occurred at Trieste, Austria, on August 7, and on August 11 one case at Livorno and three at Venice, Italy.

HONORS FOR DR. RYAN.—It is announced that Dr. Edward W. Ryan, of Scranton, Pa., chief of the American Red Cross at Belgrade, has been decorated by both the French and the Serbian governments for his work during the suppression of the recent typhus fever epidemic.

A PHYSICIAN'S GAS HELMET.—It is announced that Dr. Cluney McPherson, of Newfoundland, who went to Europe with the first contingent of volunteers from that island, has devised a new protective helmet for defense against poisonous gases. It consists of an ordinary Balaklava cap, of khaki, to which are attached a pair of celluloid goggles to guard the eyes, and a mouth pad saturated with a solution of soda and potash.

SUMMER WORK FOR FRENCH HOSPITALS.—The French Wounded Emergency Fund reports that since May the New England headquarters have helped 432 French hospitals containing 56,000 beds. Each week a shipment of surgical supplies has been shipped to England for the use of the smaller French hospitals. These cases contain surgical dressings among other things, great numbers of which have been made up at various summer resorts by vacationists. Branches are established at Islesford, Me., by Mrs. O. Y. Bowditch; Rockport, by Mrs. W. C. Rives; South Duxbury, by Miss Louise Coburn; Portland, Me., by Miss Irene H. Noyes; Round Pond, Me., by Mrs. William De Lancy Howe. Mrs. Howe has also formed a tentative organization in Friendship, Me. At Seal Harbor, Me., Mrs. William T. Sedgwick of Boston, and Mrs. Edward K. Dunham of New York, have been active in forming a committee of women to superintend the carrying on of the work. The sterilization of the bandages has been done at the Massachusetts General Hospital, Boston City Hospital, Peter Bent Brigham Hospital and the Homeopathic Hospital.

BELGIAN RED CROSS HOSPITAL.—In the issue of the *Lancet* for August 14, is a description of the Belgian Red Cross base hospital at Calais, established by Dr. De Page at the close of 1914 in the buildings of the Institut Jeanne d'Arc, under command of Captain Neumann of the surgical institute of Namur.

"From the Rue Champailler a big *porte cochère* gives into a courtyard; directly on the left is the guard-room, with medical officers' quarters above, and on the right, where were formerly

the school teachers' quarters, the building has been transformed into an operating theatre, sterilization department, and instrument and bandage room, with the dispensary above. Beyond this courtyard in the grounds is the hospital, a long lofty building divided into wards holding from 7 to 12 beds each. On the ground floor are the wards for men and the dining room for the staff and nurses, these latter it is interesting to note, being nearly all drawn from the British Red Cross Society. The first floor is taken up by an isolation ward and the officers' ward, while the floor above, one long vast *salle*, is given over to the convalescents who are waiting to be transferred to the South of France or to England. Annexed to the ground floor is the chapel, which has been transformed into a linen room; there is also an excellent radiographic and radioseopic installation."

A Ford motor ambulance has been presented to this hospital by Harvard University students.

WAR RELIEF FUNDS.—On September 4, the totals of the principal New England relief funds for the European war reached the following amounts:—

Belgian Fund	\$271,461.37
Polish Fund	50,222.55
Serbian Fund	36,624.55
French Fund	9,430.18
Italian Fund	2,603.10

BRITISH PRAISE FOR AMERICAN RED CROSS.—A report from the British Red Cross in Serbia, recently received and published by the London *Lancet*, speaks in high terms of praise of the work of the American Red Cross in that country.

"The work of the Americans already challenges comparison with what the British workers have done and it promises soon to outstrip us. An international sanitary commission, of which Sir Ralph Paget is chairman, has been established with headquarters at Nish. Under it the general medical and sanitary work of the country has been roughly apportioned between the different co-operating nations. France has charge of the northern half of the country and the United States of the south. Nish and its immediate neighborhood is under the Russians. The British have had the care of the army and most of the hospital work, except what the Serbians themselves are doing.

"This plan is working smoothly and well, but the share of the burden which the United States is bearing continually increases and will increase. Dr. Richard Strong, head of the American sanitary commission, is an exceptional man of wide experience and he has behind him the practically unlimited financial resources of the wonderful Rockefeller foundation.

"The United States, moreover, is the only nation which at the moment can spare an almost limitless supply of doctors. A party of 25 additional American doctors is expected shortly at Salonika. They are the advance guard of a

contingent of 150 or more. As they land they will be detached, singly and in twos and threes, to points all over Serbia where they are most needed.

"The typhus has now been reduced to such comparatively trivial proportions that one almost begins to speak of it in the past tense, although there will be many thousands of deaths from it yet. The total number during the winter and spring was well over 200,000.

"There are now 420 British doctors and nurses in Serbia. There have been no new wounded for some five months; typhus and typhoid have declined until they are no longer a serious public menace, and cholera, however anxiously awaited, has not yet arrived."

BOSTON AND NEW ENGLAND.

REOPENING OF BRIGHTON STOCKYARDS.—As a result of the raising of the federal quarantine for foot and mouth disease, noted in a preceding column of this issue of the JOURNAL, the stockyards at Brighton, Mass., were reopened on August 30 for the receipt and sale of cattle from Maine, New Hampshire, Vermont and Massachusetts.

NEEDS OF BOSTON FLOATING HOSPITAL.—On August 17, the Boston Floating Hospital issued an appeal to the public for \$20,000 urgently needed for the successful completion of its present season's work. On August 31, only \$9,549.58 of this sum had been subscribed. It is earnestly to be hoped that generous contributors may speedily make good this deficiency.

HOSPITAL BEQUESTS.—The will of the late Calantha E. Marsh of Boston, which was filed on August 31, in the Suffolk county registry of probate, contains bequests of \$1,000 each to the Massachusetts Homeopathic Hospital, the Kindergarten for the Blind, and the Industrial School for Crippled and Deformed Children.

PREVENTION OF MALARIA.—Professor Selskar M. Gunn of the State Department of Health, has issued a statement regarding the prevention of malaria, its prevalence, causes and proper precautionary measures to be taken. Because of the abundance of mosquitoes bred during the summer, malaria has been more than usually prevalent, seventy cases having been reported since the first of May. The statement continues with a description of the habits of the anopholes mosquito, methods of destroying its breeding places and the proper protection of houses by suitable screening. Daily doses of quinine taken during the malaria season, to prevent attacks of the disease, are urged.

FOXBOROUGH STATE HOSPITAL.—The recently published annual report of the Foxborough State Hospital records the separation of the patients and the removal, in June, 1914, of those

addicted to drugs, and inebriates, to the Norfolk State Hospital. In October, 1914, its new superintendent, Dr. Albert C. Thomas, assumed the administration of the hospital with Dr. George E. McPherson as first assistant physician. The number of patients remaining in the institution September 30, 1914, was 203. There had been 18 patients dismissed during the year.

ENTERIC FEVER FROM FRANKLIN PARK WATER.—It is reported that 12 cases of febrile enteric disturbance have recently occurred in this city among persons who, at a picnic, on July 25, drank water from a pool in Franklin Park. Investigation is being made by the Boston Health Department as to the nature and source of the probable infection.

TYPHOID FEVER IN PROVIDENCE.—Report from Providence, R.I., August 21, states that 35 cases of typhoid fever have recently occurred among residents of the Olneyville section of that city. All are among families supplied by two dealers whose milk is therefore believed to be the source of the infection.

INFECTION FROM SODA GLASSES.—In the effort to prevent possible spread of infection from unclean utensils at public soda fountains, the Boston Health Department has recently issued the following notice and regulation:—

"Proprietors of drug stores and other places where ice cream, college ices, etc., are sold are hereby notified that it is hereafter required that spoons, glasses or other utensils used in serving such ices be thoroughly cleansed and dried after each use."

Miscellany.

HEALTH TEMPLES IN ANCIENT GREECE.

THE subject of the health temples of ancient Greece is one of perennial interest which, at various times, has been dealt with in preceding issues of the JOURNAL. As a matter of fact the medical knowledge of Egypt preceded that of Greece, as did its civilization, but the records which remain of Egyptian medicine and medical worship are relatively fragmentary. It seems indubitable, however, that the early Greeks fully recognized their indebtedness to Egyptian methods and knowledge. It may be recalled that in the fourth book of *Odyssey*, when Helen mixes an opiate in the wine at the feast, reference is made to her having obtained knowledge of such drugs from the Egyptian princess Polydamna, wife of Thome. And of the Egyptians, Homer goes on to say (ll. 231-232):

ἴητρός δὲ ἔκαστος ἐπιστάμενος περὶ πάντων
ἀθρώπων η̄ γὰρ Παιώνος εἰσὶ γεράλης

In a paper read before the section of history of medicine of the Royal Society of Medicine on December 17, 1913, and published in the issue of the *Lancet* for January 10, 1914, Dr. Richard Caton presented a careful study and description of several of the ancient Greek temples and of the ceremonial rites there practised. The first of these temples, that of Amynos, has been largely forgotten, and in Greek literature, indeed, is mentioned only in the writings of the Christian Eusebius. Amynos was an Athenian god of healing, whose cult has been discovered within a few years, his name being derived from the word *ἀμένας* to ward off, to protect. At the time of Professor Dörpfeld's excavations at Athens in the region between the Areopagus and the Phyx, there were exposed, among other relics, the ruins of the Amyneion, or temple of Amynos, an irregular area bounded by a wall with foundation of hard blue limestone and having at its eastern side a temple or chapel, in the center of which is an altar and sacred well. Many inscriptions were found here and an attempt has been made at a restoration of the precinct, grove and ancient temple.

"Its date is best judged by the pottery. Attic black figured, proto-Corinthian of 700 B.C., and lowest of all Greek geometrical pottery of 900 or 1000 B.C. were found. The temple at that date would have a stone foundation with walls of sun-dried brick covered with cement. The colonnade and pediment, if existing, must have been of wood, the columns formed of rough pine trunks. No stone drums of column nor any parts of a stone frieze have been found. Many inscriptions of later date were discovered. The cult of Asklepios came to Athens about 420 B.C. Inscriptions are mostly to Amynos and Asklepios, and sometimes to them and Dexion (Sophocles). Fragments of marble snakes are found, and numbers of remains of sculptured figures and ex-votos.

Asklepios seems to have been quite secondary to Amynos in the shrine, and up to Roman times Amynos holds his pre-eminence. Was incubation practised here? We have no information. A second foundation has been found which possibly was the wall of a shed for incubation. Nor is anything known about baths, drugs, or methods of treatment. But treatment seems to have been greatly valued, if we may judge from the inscriptions and ex-votos."

Another of the ancient Greek deities of healing was Amphiaroas, whose chief sanctuary was near Oropus in Attica. He had also subsidiary shrines at Rhammus, Argos and Sparta. Dr. Caton describes his temple as follows:—

"In a pleasing glen, well clothed with pines, planes, and oleanders, through which a stream flows and in which many nightingales lift their voices, the shrine was built. Amphiaroas, a son

of Melampus or Apollo, was a prehistoric warrior and a hero, one of the Seven against Thebes and one of the Argonauts. When flying from his enemies the earth opened near Oropus and swallowed up Amphiaroas and his chariot. Why he should have become a great healing god it is hard to say.

"On the northwest of the stream on a flat strip of ground stand the remains of the same-tuary. Most to the west are the ruins of the Temple of Amphiaroas, a building 95 feet long and 43 wide, having a broad columned portico at the east end, six columns between antae. The cella had three aisles, separated by rows of columns. At the southwest end was apparently a small porch 8 feet by 5. A large square base stood near the centre of the cella, on which, no doubt, stood the great image of Amphiaroas—part of a colossal arm found was doubtless part of the figure—it was rather nearer the eastern end than the west. Probably the temple was not hypaethral, for if so rain would fall on the god; louvres more probably lighted the cella. In front of the temple stood a large altar 28 feet long and 14 broad, built of limestone. It was dedicated to several gods. Three long curved steps are seen on the north of the altar, on which no doubt worshippers stood or sat. The sacred spring rises a few feet south of the altar, and was used for special purposes only (not for washing hands nor for purification). Amphiaroas rose as a god from this spring—hence its sanctity. North of the temple and altar stood a large number of pedestals bearing statues.

"Northeast of the temple is a large stoa 360 feet long and about 36 wide. It has an open Doric colonnade of 49 columns on the southeast side, the other sides having solid walls. At each end is a chamber about 24 feet wide, and between them a long space of 310 feet (gratings in separation walls). A central line of 17 Ionic columns divided the stoa into two aisles. A marble bench ran along the back wall. The inner face of the wall was stuccoed and painted. Traces of painting still remain. This was the abaton, enkoimeterion or ward; the women occupied the western end, the men the eastern. Behind the colonnade, excavated from the hill side, is the theatre, with circular chorus space about 40 feet wide. The stage was about 40 feet by 20. Northeast of the abaton or ward is a series of bath-rooms, ten in number, dating from the third century B.C., but Roman alterations are evident. Two rooms have a hypocaust. Men and women had separate rooms.

"The inscriptions indicate that the sanetuary was founded at the end of the fifth century B.C., and that it was closed during winter. The priest was obliged to be present not less than ten days in each month and never to be absent more than three days at a time. The nakaros or saeristian was to attend regularly to his own duties. Any patient misbehaving might be fined five drachmas. On admission each patient paid a fee of not less than nine obols. The priest,

when present, must pray over the victims and put their flesh on the altar. The shoulder of every animal sacrificed, and in some cases both shoulders, were given to the priest, also the skin was ultimately his property. The patients might eat most of the flesh of the sacrificed animal, but no part of it might be taken beyond the precinct. The nakaros wrote down all the names and addresses of the sick. Before incubation each patient sacrificed a ram, and he used its skin as a bed, lying upon it in the abaton. Then incubation commenced, and he nightly awaited dreams and visions of the god.

"Whether or not any drugs were given, no one knows. A special diet with occasional abstinence was enjoined—fasting from all food for one day and from wine for two. No beans were allowed. When recovery took place the convalescent dropped gold or silver coin into the sacred well (which offering presumably was subsequently abstracted by the priest). Models in gold or silver of the diseased organ or limb were suspended in the temple near the figure of the god. Many gold and silver vessels and ornaments were given. There was a festival of the god every fourth year. That is all that is known.

"The shrine of Trophonios of Lebadea near Thebes had a lesser vogue for cure of the sick. The methods were somewhat the same: incubation and sleeping on the skin of a black ram."

The worship of Asklepios probably began to develop about 800 B.C., and extended from its original source at the Thessalian town of Tricea* to its great centers in Cos and Epidaurus. In the fifth century before Christ it had become established at Athens and Corinth; later it extended to Pergamon in Asia Minor, and finally, in 270 B.C., was brought to Rome and established there in a temple on an island in the Tiber. Dr. Caton describes as follows the great temple at Epidaurus in Argos near Athens:

"The site of the Hieron was six miles inland from the town of Epidaurus. At the time of its greatness an extensive precinct occupied the beautiful valley extending from the hill Titthion, where Asklepios was suckled by a goat, to Kynortion, on which stood the Temple of the Maleatean Apollo. Here is a rough bird's-eye view of the precinct as seen from the south—a splendid array of temples, stoae, a great theatre, a stadium and grove. Here is the gateway with well for ceremonial purification, and the northern boundary wall. Here is the central temple of Asklepios, built in the fourth century B.C. The eastern facade presented a richly decorated and colored scheme. The eastern pediment represents a combat of Greeks and Amazons, the western a conflict with Centaurs—Victory on the apex, and Nereids as acroteria; an elaborate ivy door. A side view of the temple shows the works of art adjacent to it, and behind it a part

* Cf. Homer's Τρέκης ἐξ ἵπποβότοο (Iliad IV, 202).

of the abaton. A sketch of the interior shows the splendid gold and ivory figure of the god with a golden serpent and a temple dog. Chryséléphantine sculpture is very beautiful; the ivory, however, tended to crack, as was found at Athens and Olympia. But this great figure of Asklepios never required to be moistened with oil or water, as did the others, for the god of physic we may presume knew how to preserve his own integument. Only the floor of this temple and fragments of its decorations remain.

"The abaton, or enkoimeterion, or hospital ward was employed probably half for men and half for women. On the south it has an open colonnade. So whatever other therapeutic agencies were employed there is no doubt that pure fresh air was enjoyed by the sick who occupied it. At the west end it was two stories in height. Here incubation took place, the sick awaited the personal aid of the god or of the serpents, or they hoped for dreams or visions guiding them as to the best treatment for their several ailments.

"Here is the Tholos or Thymele, an extraordinarily beautiful building of white marble colored in parts. It was the most splendid circular building ever erected by the Greeks, dating from the third century B.C., built by Polycleitos the Younger. It was Doric externally, Corinthian within. Within were two celebrated paintings, Methe (drunkenness) and Eros, suggesting the relation of Dionysos and Aphrodite to the ailments which afflict mankind. There are various opinions about the function of the Tholos. Some think it was the sacred well. The foundations are curious, a dark labyrinthine basement, which I think cannot have been a water-tank, because, first, it was not cemented and would never have held water; secondly, there is no spring nor conduit leading to it; thirdly, the word Thymele means a sacrificing place; and fourthly, Pausanias speaks of the Tholos and the sacred well as entirely distinct. I have little doubt that it was the home or lair of the sacred serpents; in the vaults beneath they dwelt and bred in numbers, and from here they were sent to the numerous asklepieia all over the ancient world. The snakes would ascend to the floor of the tholos, where bloodless sacrifices were offered to them, and where the sick gave them the honey cakes, popana, and other sacrificial delicacies they were fond of."

Of the ceremonial rites observed in these Greek medical temples, Dr. Caton presents an interesting discussion. Vast numbers of the sick came to them from all parts of the world and were presumably lodged in tents, except while they were receiving treatment, when they slept in the abaton. Thousands of well persons, however, came to these religious festivals merely for curiosity and enjoyment, like the throngs who go nowadays to such religious festivals as those of the Grotto at Lourdes, whose ceremonials and purposes are in many respects closely analogous to those of ancient Greece. Many

characteristic tales are narrated in connection with these occasions, of which but one must serve as an example. The story is told of Hermon, of Thosos, who was blind and came to Epidaurus for cure.

"His sight was restored by Asklepios, but Hermon did not send the fees he had promised on his return home, so the god again made him blind. He came back to the hieron with the fees and was again cured. A man had an abscess in the abdomen. In a dream the god ordered his servants to hold him while he (Asklepios) opened the abdomen, cleared out the abscess, and sewed up the wound. When the patient awoke a great pool of blood was on the floor of the abaton, and he was cured. A great number of such inscriptions were fixed on the wall of the abaton.

"In later times superstition had a less share and science a greater one in the work of healing. We read of the priests using reasonable and useful methods of treatment: diet of a plain and simple kind, hot and cold baths, poultices, various medicaments such as hemlock juice, oxide of iron, hellebore, squills, lime-water, and drugs to allay pain, active gymnastic exercise, friction of the skin, and counter-irritation. Bleeding was practised, as shown in this vase-painting, and surgical methods were in use, for reliefs of surgical instruments exist."

Interesting contemporary records are preserved in literature of the functions and ceremonies practised in these Greek medical temples and of the sacrificial rituals employed. An excellent example of this type of literary composition may be found in "The Saerifice to Asklepios," a mime of Herondas, translation of which was published in the issue of the JOURNAL for January 9, 1913 (Vol. clviii, p. 46).

THE HISTORY OF BLOOD-LETTING.

In the first Mellon lecture, delivered at Pittsburgh, Pa., on Feb. 27, 1915, and published in the issue of *Science* for July 30, Prof. John J. Abel sketches the history of blood-letting, in part as follows:—

"In the latter part of the twelfth century, when universities, as we now know them, were coming into existence, there originated in the School of Salerno the 'Regimen Sanitatis Salerni' or 'Code of Health,' a poem written in Latin hexameter verses and giving the medical notions of the day, as derived from the Arabic writers, in regard to blood-letting, diet and personal hygiene. The high value placed on the 'Regimen' may be seen from the fact that it passed through some 240 different editions and was translated into all the known languages. In general praise of blood letting the poem says

"Bleeding the body purges in disguise,
For it excites the nerves, improves the eyes
And mind, and gives the bowels exercise.
Brings sleep, clear thoughts, and sadness drives
away.
And hearing, strength and voice augments each day."

"Other verses give directions as to what months are proper and what are improper for bleeding, tells what diseases are benefited by blood-letting and in what quantities blood should be drawn, and the effect of age and other circumstances.

"Acute disease, or only so in part,
Demands blood-letting freely from the start.
In middle age, bleed largely without fear,
But treat old age like tender childhood here."

"In the sixteenth and seventeenth centuries there were heated controversies between advocates of the Hippocratic method of letting blood near the diseased part, and those of the Arabian method of opening a remote vein. Among the former was Pierre Brissot (1478-1522) of Paris, and among the latter Leonardo Botallo, a Piedmontese, an eminent practitioner of his time, "chief physician to Charles IX, advising venesection to the limit, regardless of the nature of disease, the age or condition of the patient. Blood-lettings of three to four pounds each, repeated as often as four or five times, were advised, says Haeser, and this historian adds that the explanation of this 'Vampyrismus' is probably to be found in the circumstance that Botallo lived in Northern Italy, where diseases of an inflammatory character were prevalent, and more especially that in his experience as an army surgeon he encountered only patients of the most robust type. Botallo, in defending his practise said,

"The more foul water is drawn from a well, the more good water can flow in to replace it."

"An ardent follower of Botallo was Riolan the younger, who falls back upon Hippocrates and Galen and lays down the rule that one must take away as much blood as possible in every disease. As an adult is judged to have about thirty(!) pounds of blood, the tapping of half this amount, or fifteen pounds, in the course of fourteen days would be about the right amount to take, says Riolan. Guy Patin (1602-1672), himself an ardent bleeder and purger, informs us that Bovard, body physician of Louis XIII, bled that monarch forty-seven times, gave him 312 elysters and prescribed emetics and purges, 215 times, all in one year.

"A little later, that able and credulous Belgian mystic and follower of Paracelsus, J. B. Van Helmont (1578-1644), an iconoclast in general, called by his admirer Haeser 'The fist of the seventeenth century,' went so far as to condemn venesection entirely."

Francisens de la Boë (1614-1672) of Leyden advocated moderation in venesection. In the chapter of his "New Idea" (translated by Rich-

ard Gower, of London, in 1675) on the motion of the blood through the lungs, he says:-

"*A Plethora of Blood* is soon and safely cur'd, by a sufficient Emptying of it by opening a Vein; whether it be together and at once, or by repeated turns, according to the peculiar nature and strength of the Sick. For there are many who cannot bear to have much taken away together, but soon fall into a Swooning: by which feeling none can at any time receive any good, I had rather that it should be prevented, as often as may be, and every Cure be done securely rather than rashly, seeing it often happens to those rash Blood-Letters, that they educe Life together with Blood."

"An instance of lavish blood-letting in a medical crisis may be found in the experience of that adventurous spirit, Thomas Dover, to whom we owe the much used 'Dover's powder.' In 1708, Dover, then forty-eight years old, set out on a privateering expedition, and was given command of a ship, the *Duke*, while his superior, Captain Woodes-Rogers, took command of the other ship of the squadron, the *Duchess*. The three years' voyage of these buccaneers is of interest historically because,

touching at the island of Juan Fernandez, they took on board Alaxander Selkirk, who had lived alone on the island for four years and four months, and whose story was to develop in the skilful hands of Defoe into that of the immortal "Robinson Crusoe."

"In Dover's 'Ancient Physician's Legacy to His Country' we find the following interesting passages:-

"When I took by Storm the two Cities of Guiaiaquil, under the Line, in the South Seas, it happen'd, that not long before, the Plague had raged amongst them. For our better Security, therefore, and keeping our People together, we lay in their churches, and likewise brought thither the Plunder of the Cities.

... In a very few days after we got on board, one of the Surgeons came to me, to acquaint me, that several of my men were taken after a violent Manner, with that Languor of Spirits, that they were not able to move. I immediately went among them, and, to my great Surprise, soon discerned what was the Matter. In less than Forty-eight Hours we had in our several ships, one Hundred and eighty Men in this miserable condition.

"I order'd the Surgeons to bleed them in both Arms, and to go round to them all, with Command to leave them bleeding till all were blooded, and then come and tie them up in their Turns. Thus they lay bleeding and fainting, so long, that I could not conceive they lost less than an hundred Ounces each Man.

"If we had lost so great a Number of our People, the poor Remains must infallibly have perished. . .

"We had on board Oil and Spirit of Vitriol sufficient, which I caused to be mixed with Water

to the Acidity of a Lemon, and made them drink very freely of it; so that notwithstanding we had one hundred and eighty odd down in this most fatal Distemper, yet we lost no more than seven or eight; and even these owed their Deaths to the strong Liquors which their Mess-Mates procured for them. . . Now if we had had Recourse to Alexipharmicks, such as Venice Treacle, Diaseordium, Mithridate, and such-like good-for-nothing Compositions, or the most celebrated Gascoin's Powder, or Bezoar, I make no Question at all, considering the heat of the Climate, but we had lost every Man.'

"Of non-medical literature the Satire of Gil Blas, written early in the eighteenth century, but in reality giving a picture of seventeenth-century excesses in blood-letting, is worth citing.

"Dr. Sangrado is called in to prescribe for a gouty old canon, and he at once sends for a surgeon and orders him to 'take six good porringers of blood in order to supply the need of perspiration.' The surgeon was ordered to return in three hours and take as much more, and to repeat the evacuation the next day. The patient was 'reduced to death's door in less than two days,' and, the notary being summoned to make the will, seized his hat and cloak in a hurry, when he learned from the messenger, Gil Blas, that Dr. Sangrado was the physician. 'Zooks,' cried he, 'let us make haste, for the doctor is so expeditious that he seldom gives the patient time to send for notaries; that man has choused me out of a great many jobs.'

"But the misuse of bleeding continued in the centuries following, and at no time was the practise more abused than in the latter part of the eighteenth or even in the first five decades of the past century. French and Italian authorities, especially, were great believers in blood-letting. Broussias (1772-1832) is said to have used 100,000 leeches in his hospital wards in one year. This physician and his follower, Bouilland, actuated by false theories of the causes of fevers, recommended the bleeding of a patient 10 to 12 and even 20 times in the course of treatment."

Correspondence.

PARIS LETTER.

BRIEF IS THE MEMORY OF THE EARTH:

(From Our Special Correspondent.)

PARIS, July 17, 1915.

Mr. Editor: I went out a short time ago to see a portion of the ground over which was fought the battle of the Marne, and I must confess that the experience was a good deal of a disillusion to me. That the memory of man is short, has in all likelihood been a proverb ever since the world has been inhabited; but that the memory of the earth was equally transitory, came to me as a considerable shock.

Between Vareddes and Meaux, about 50 kilometres due east from Paris, the Marne makes a huge loop to the South, the region between the two places being a

high, rolling plateau; this point formed the angle that the German centre made with their flank which was being driven in by the army under Maunoury which General Joffre had assembled, unbeknown to the enemy, behind the screen of the Paris defences. General Joffre's strategy at this period was really admirable. In the early encounters of the war the French were pretty badly hustled about,—there is no gainsaying that fact; but then, instead of letting everything go to pieces, this wonderful man conceived the idea of his stupendous but thoroughly-reasoned-out retreat which drew the foe into a species of lobster's claw, one point being Paris and the other Verdun, from which he only barely escaped when the two branches began to close in. There can be no doubt that when this feat has been thoroughly examined, and the circumstances are well taken into consideration, General Joffre's strategy under such very serious conditions will go down in history as one of the great accomplishments of the art of war.

Poor Maunoury, by the way, was later on the victim of one of the most extraordinary accidents of the war: he and a brother general were one day looking through a loophole at a perfectly quiet point of the trenches when they were both shot through the head by a single bullet, he losing one eye outright, and, it is apprehended, the sight of the other,—his colleague being wounded in the forehead. The latter has now entirely recovered and has resumed his duties again.

Leaving Meaux the carriage takes you up an interminable hill in order to reach the high plateau, and once there you have the classical, fertile French landscape in its deep-green spring verdure: waving crops, half grown; dense masses of trees; bright, white, poplar-bordered *chaussées* leading off to villages here and there,—it is all smiling, prosperous and peaceful, the scene you have admired scores and scores of times in this beautiful, well cultivated land. Here is a farm partly burned down; but any fire could do as much as that. That church over at Barenton looks a bit earth-quaky; but it is too far off to distinguish details as yet. The grain is about knee-high, and all the fields seem to be in full cultivation; how about the entire manhood being away under arms! *This* the battle of the Marne? Evidently some more of our preconceived ideas will need readjusting.

I may as well tell the patient reader who has been able to get through my war-strategy, and description of landscapes, that if anyone here advises him to go and visit the battlefield of the Marne he had better merely stay in town and take his coffee at the *Café de la Paix*, for all the battle-field he will see. At two places the little white crosses that mark the temporary resting-places of the dead are sadly plentiful; but when you have seen one cross you have seen them all. The Barenton church is badly battered, the village walls are closely pitted with rifle shots, the cemetery at Chambry has a line of loopholes above its long row of new-made graves,—and that is about all! Eight months ago history was being written on this plateau with a broad and generous hand. From what I have said, and shall say in a moment, it is clear that in those early days of September, when we in Paris had that peculiar sensation of emptiness about our solar plexus and were dropping our weight at the rate of a pound a day (I have now collected quite a number of instances of men who simply melted in Paris during that strain, from sheer apprehension!), the general conditions upon this high ground back of Meaux were very far from conducive to longevity. But kindly Nature has intervened, and has drawn her soft mantle of green over the whole of it; and by next spring the honored dead will all have been exhumed and transferred to their proper resting places, the walls will then have been replastered, and the poor Barenton church probably rebuilt. What will there remain by that time to speak to the passer-by of this struggle of giants? Not much,—but still something: a reminiscence that will last a long, long while.

One of the most striking object-lessons in the New

York Museum of Natural History is a section of a big sequoia tree, well over a thousand years old, as I remember it, on which the annual rings are marked with little flags indicating that when the tree was that large such and such an event occurred: the birth of Mahomet, the conquest of England, the discovery of America. Well, strange to say,—outside of the church burial-places, it will be the trees of the *chaussée* from Meaux to Varedes that alone will bear witness to this battle in the times to come. Up on the brow of that hill, at the highest point, the road is bordered on either side by a row of unusually fine trees or from one to two feet in diameter,—really big trees. This must have been a particularly hot corner during the fight, for all of these trees are riddled; and not with bullets,—a bullet would hardly show on a tree, it only shows on a plaster wall because it splits off a large flake,—but with shell. Some missiles took out a big piece from the tree-side, others went smack through, while still others carried away an entire branch or even cut the tree-stem clean off! But the trees are growing once more, cheerfully, and as though nothing had happened, and will for many a long year to come give evidence to the younger generations, as they walk out there Sunday afternoons, of the deeds of their fathers during the great war. All the same, it is rather startling to think that that is all that will remain of this terrific struggle! Wounds must heal, both physical and mental, otherwise life would be intolerable; but it is rather a shock, to see them heal as quickly as this!

Speaking of the graves of the fallen, brings me to another remarkable feature of this war, the extraordinarily high ratio between killed and wounded,—something quite unprecedented. When the papers were reporting the British casualties at Neuve-Chapelle, I was horrified to see that among the thousand odd officer casualties there were 350 killed, over one-third, and this did not include the missing, among whom there must have been still more killed. I thought that an explanation of the fact might lie in the circumstances that the British officer is an absolutely reckless creature, who always starts off well ahead of his men, and seems to consider that his special rôle in life is to get himself picked off by the enemy's sharpshooters. This, by the way, is a point that will certainly have to be changed in future wars; it is as clear as day that a country that wishes to keep any officers at all for further use will have to devise some other way for them to direct their men than the present one, which is nothing less than a thinly disguised form of *hara-kiri*.

The French have never published any collective casualty-lists; but a while ago, quite a time back, I saw what looked like an authoritative estimate, giving 400,000 killed and 750,000 wounded,—almost the exact ratio of the officer-casualties above cited! Quite recently, only a few days ago, Mr. Asquith reported in the House of Commons the British casualties to date, in which the same awful ratio appears,—in round numbers: officers, killed 3,300, wounded 6,500, missing 1,100,* men, killed 47,000, wounded 147,000. The ratio for the men is not quite so high, nearer one-quarter than one-third; but it should be noticed that there are reported in addition 52,600 men missing, a very large part of whom are certainly killed, as the Germans do not claim half that number of British soldier-prisoners. These figures are certainly new in warfare, and bear fearful testimony to the efficacy of modern weapons. And if this is the ratio among the Allies, who fight in extended formation and with a steady view to economy of life, what must the figures be among the Germans, who, especially during the early stages of the war, were absolutely reckless in their expenditure of men?

In connection with the curious accident whereby two generals were put out of action by a single bullet, let me mention another very peculiar occurrence of this

war. It was reported in the daily press, with regiment, name, place and hospital, and has every appearance of truth. A soldier, Boissay by name, entered the ambulance for a fracture of the left leg and wounds of the right. X-ray examination revealed in the latter round bodies that were taken for shrapnel bullets, but that were found on extraction to be *three twenty-franc gold pieces*, or Napoleons, as they are familiarly known. Now the strange part of the tale is that the patient was a poor man, who had not even a bowing acquaintance with such a *grand seigneur* as a Napoleon! The three coins must, therefore, have been blown out of some comrade's pocket into the wounded man's leg!

"S."

AMERICAN RED CROSS IN SERBIA.

SKOBELJ, SERBIA, July 10, 1915.

Mr. Editor: I suppose that an account of the conditions in Serbia would be of special interest to your readers, but I am in no position to treat the subject adequately, nor would it be proper for a member of the American Red Cross Commission to attempt this without the aid and approval of its Director, Dr. Strong. Therefore, I wish to have it clearly understood that what follows are personal impressions and views subject to correction.

The epidemic of typhus in Skobeli seems to have been at its height in January or February and to have diminished rapidly during the month of April, so that when we arrived here in May comparatively few new cases were entering the Lady Paget Hospital which had been reserved for fevers, and for typhus in particular. This hospital was staffed by British and supported by the British Serbian Relief Fund. The members of the staff kindly allowed several of us to join in the work, and to live at their hospital in order that we might begin to study typhus without delay, and had it not been for this hospitality, we should have lost much time in getting settled.

They told me that they had begun work in one of the Serbian hospitals which had been a school, and had later moved into their present quarters, the Cadet Barracks, situated most beautifully in the midst of rolling pastures in the valley of the Vada, a mile above the town. They had found terrible conditions in the stables where Austrian prisoners were quartered hard by, and several of their hospital-staff had contracted typhus by going into these buildings to remove the sick and the bodies of the dead. Lady Paget took the disease in the same way.

The mortality among these prisoners seems to have been frightful at first and was due, probably, in great measure to lack of hospital care, or indeed care of any sort. After the hospital got running well and had an adequate staff of nurses the number of cases of typhus which entered began to diminish, although patients were being sent from all the neighboring towns and villages, and finally began to come from far distant places.

We had not been many days at the hospital when the last large lot arrived. They had been collected and brought to Skobeli by a sanitary train, and some of them lived nearly as far away as Belgrade. Having been sorted by the Serbian doctors in the town, those destined for the Paget Hospital began to arrive by carriage-loads in the afternoon. There were carriages, carriages, and still more carriages until the ground around the wash-house was covered with emaciated, unkempt humanity. The "bolnitchers", or Austrian orderlies, got busy with the dippers, tied the clothes into bundles, and lead the tottering patients into the wash room where they were duly scrubbed. Meanwhile brandy was given, where they lay, to the weakest, and it seemed as if some would die before they could be cared for. Then skinny figures, clad in night-shirts, began walking across the grass barefooted to the ward buildings, and stretchers also were seen, but there was no confusion and no excitement.

* A writer in the *Lancet* makes the proportion of killed to losses among officers work out as high as 43.61 per cent.

Eighty patients were taken into the hospital that afternoon with perfect ease. However, 120 had been expected and the beds were ready of course.

Half of the new patients went into my wards where I looked them over, prescribed hastily on general principles, and singled out the sicker patients for special attention. It was several days before all had been examined completely. If you think you can diagnose typhus by the facies, try it under such circumstances. I diagnosed it freely only to find later that several of my supposed typhus cases had relapsing fever.

In Serbia there are "three typhuses," typhus exanthematus or "pegevi-typhus," typhus recurrans, and typhus abdominalis, and in the recent epidemic here there has been a considerable percentage of recurrences, as has so often been the case in other epidemics of typhus fever. I have seen very few cases of typhoid fever, but among the patients sent to the Pager Hospital as "typhus" there has been a certain proportion of tuberculosis in its various forms, some malaria, a little diphtheria, and, recently, a large number of typhus suspects have been admitted for a disease afterwards designated "influenza," or "dogs' disease," and which may have been popotasi fever.

At the present writing there is little typhus anywhere in Serbia so far as I can learn, and that which persists is confined to a few localities.

G. C. S.

A NAUTICAL REMEDY FOR HICCOUGH.

DARK HARBOR, ME., Aug. 26, 1915.

Mr. Editor: In "Ancient Remedies for Hiccough," JOURNAL of Aug. 26, I note the omission of a remedy which I have heard was at one time considered sovereign by sailors; to wit, to spit tobacco juice on the testicles of the sufferer.

Yours truly,
F. C. SHATTUCK.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING AUGUST 28, 1915.

CONTRIBUTIONS.

Warren County Medical Association, Vicksburg, Miss. \$10.00

Receipts for the week ending August 28. \$10.00
Previously reported receipts. 7804.84

Total receipts. \$8714.84
Previously reported disbursements:
1625 standard boxes of food @ \$2.20. \$3575.00
1274 standard boxes of food @ \$2.30. 2930.20
353 standard boxes of food @ \$2.28. 804.84

Total disbursements. \$7310.04

Balance. \$8 504.80
F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

NOTICE.

Until further notice the voice clinic of the Boston Psychopathic Hospital will be open daily except Monday from 3 to 5 p.m., for charity cases of all the phases of speech defects.

WALTER B. SWIFT, M.D.

SOCIETY NOTICES.

AMERICAN SOCIAL HYGIENE ASSOCIATION.—The annual meeting of the American Social Hygiene Association will be held in Boston, Massachusetts, October 8, 1915. In connection with it there will be public meetings in the afternoon and evening, the latter to be held jointly with the Massachusetts Society for Social Hygiene. Details of the program are not yet completed but will be announced soon.

JAMES H. FOSTER, Assistant Secretary.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The twenty-fifth annual session of the New York and New England Association Railway Surgeons, celebrating the quarter century anniversary of the organization of the association, will be held at Hotel Astor, New York City, October 21, 1915, under the presidency of Dr. W. H. Marcy, of Buffalo, N. Y.

A very interesting and attractive program has been arranged. Railway surgeons, attorneys and officials, and all members of the medical profession are cordially invited to attend.

GEORGE CHAFFEE, M.D., Corresponding Secretary,
338 47th Street, Brooklyn, N. Y.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—The twenty-fifth annual meeting of the Association will be held at Atlantic City, September 14, 15 and 16, 1915, with headquarters at the Hotel Chalfonte.

All physicians interested in physical therapeutics are invited to attend.

J. WILLARD TRAVELL, M.D., Secretary.

APPOINTMENTS.

UNIVERSITY OF NEBRASKA.—Dr. Oscar Theodore Schultz, formerly assistant professor of pathology in Western Reserve University, has been appointed professor of pathology and bacteriology in the University of Nebraska.

UNIVERSITY OF PITTSBURGH.—Dr. John Jenkins Buchanan has been appointed emeritus professor of surgery and Dr. Robert Tablott Miller professor of surgery in charge of the department.

Dr. P. H. Roemer, director of the Institute of Hygiene at the University of Greifswald, has been appointed to succeed Professor Fraenken at the University of Halle.

RECENT DEATHS.

DR. THOMAS F. AIKEN, who died in Boston on Aug. 16, was born at Oswego, N. Y. He received the degree of M.D. from the University of Pennsylvania in 1894, and after practising his profession for a time in Philadelphia removed and settled in Boston. He is survived by his widow.

DR. N. W. WILSON of Buffalo, N. Y., died on Aug. 30, of cardiac disease, in New York City. He was for many years a resident Rutherford, N. Y., and after having engaged for a time in journalistic work he studied medicine at the Buffalo Medical College. He was a practitioner in Buffalo at the time of the Pan-American Exposition in that city, and was the first physician summoned to attend President McKinley when the latter was assassinated there.

DR. MARTIN BERNARD RODDY, of Lynn, Mass., a Fellow of The Massachusetts Medical Society, and of the American Medical Association, died at the Lynn Hospital, Aug. 12, following an operation for appendicitis, aged 29 years. He was a graduate of the Baltimore Medical College in 1909.

The Boston Medical and Surgical Journal

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SURGICAL EXPERIENCES IN FRANCE.

BY WILLIAM JASON MIXTER, M.D., BOSTON.

WHEN I arrived at Juilly last February, Hospital B. of the American Ambulance was in running order and filling up fast. It is more often spoken of both in America and in France as Mrs. Whitney's Hospital as it was furnished and is maintained entirely by Mrs. Harry Payne Whitney of New York. The hospital was located in one wing of an old Jesuit college dating from the 12th century, which the French Government had requisitioned. There were no modern conveniences of any kind when Dr. Edward Martin and those associated with him began their work, and the mere fact that when we arrived it was a fully equipped hospital, with large airy wards, operating room, x-ray plant, ample cuisine, laundry, modern plumbing, steam heat and electric lights, shows what these men had accomplished. Juilly is about 30 miles from Paris on the road to Soissons, and is one of the innumerable small villages scattered among the beet fields of that part of France. The trenches lie 35 miles further out, swinging gradually north and east, and passing about 12 miles from Compiègne, which was 40 miles from Juilly. This town to us was the most important place in our vicinity, as it contained the distributing point from which almost all of our patients came.

When a soldier is wounded in the French trenches he has a first aid dressing applied by the medical officer or orderly, and is carried back

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as soon as is practicable to the dressing station. Here his dressing is re-enforced, if necessary, and a diagnosis tag tied to his clothing, unless this has been done in the trenches, and, unless moribund, he is sent at once to one of the first line hospitals, or if the wound is slight, and transportation is at hand, to the distributing point in the rear. Here he is again looked over and final disposition made of the case, either to some local hospital in the army zone, or by rail to Paris or some of the larger base hospitals in the south of France. Penetrating wounds of the head, chest or abdomen are usually kept near the front until better able to travel, but most fractures and a certain number of these more serious cases are sent back from the first line. Of course the disposition of a given case depends to a great extent on the severity of the fighting at the moment.

The Palace of Napoleon III at Compiègne has been taken as the centre of hospital activity in this vicinity, and there are many wards for medical cases. The main hallway is entirely devoted to the work of distribution of the sick and wounded, brought here from the dressing stations and hospitals of the first line in the French military ambulances. Three times a week our convoy, usually four ambulances and one staff car, for the chief of ambulances, the doctor and the interpreter, went to Compiègne to receive the cases assigned to us by the major in charge. Those long rides were most interesting at first, but after a time they became somewhat monotonous, although always a change from hospital routine. It seemed strange, indeed, to go spinning along over those wonderful roads and never



FIG. 1.
Ward at Juilly.

<i>Sécession de l'armée autrichienne faite le 22/1/1915.</i> <i>Morphine - Caffeine - Morphine</i>	Brigade Marocaine Ambulance n° 1 Nom et Prénom: <u>Ahmed ben Moulai</u> Numéro matricule: <u>69.02</u> <u>2d.</u> Régiment: <u>Fourchard</u> <u>1^e Cie</u> Diagnostic { 1) Plaie pénétrante de poitrine par éclat d'obus. Pas d'orifice de sortie. Orifice d'entrée: 5 centimètres au dessus du sein gauche. - Hémithorax - 2) Plaie du pied droit. Orifice d'entrée: à centimètres au-dessous de la malleole interne. Orifice de sortie: au milieu de la plante du pied.
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FIG. 2.
Diagnosis Tag.



FIG. 3.

American ambulances receiving wounded at Compiègne.

meet an automobile, save occasionally some military car or motor-cycle, tearing along at forty, fifty, or even sixty miles an hour. Nothing impresses one as much as the complete absence of motors and of men of military age. If you see one in citizen's clothes you always look twice to see what he is and why he is there.

One rarely sees soldiers, except a certain number ploughing or lounging about the villages. There are no great camps, as the men are all billeted on the villages or housed in barns, store-houses and the like, and this, I am told, is true all through France. Later I did see a few camps back of the English lines, but nothing to what I had expected. Along all the railroads and on every bridge were guards, usually older men of the reserves, clothed in blue coats, buttoned back and the red trousers which have been immortalized by Detaille in his battle pictures of the Franco-Prussian war. It always seems to me that these old men, who do nothing but guard duty from one month's end to the next, have about the most miserable existence possible for a soldier. They are always keenly on the job, however, and you know when you see one step out to the middle of the road ahead of you and raise his rifle horizontally above his head at arm's length, that it is time to stop and have passes examined, or give the *mot*. As this happens every few miles it is easy to see that the passless motor will not get far.

Naturally passes are not given out freely, and to get one it is necessary to go to the headquarters of the army in whose zone you wish to travel, state your business and then, perhaps, you will get the necessary document. Passes for ambulances on a fixed route or in a definite area are given out for two weeks and specify the military number of the car, name and number of the driver, and name or occupation of the passenger (doctor, litter bearer, etc.). No passes given by the headquarters of one army are good in the territory of any other. Travel of all sorts is discouraged, and passes issued by the civil or military authorities are required whenever one

leaves the town in which he holds his *permis de séjour*.

At Juilly a great number of our cases were bullet fractures and severe wounds, not involving the body cavities. The peritoneal wounds, etc., stayed further front, while the minor injuries went further to the rear. Naturally, however, we had a few of both the more severe and the lighter type of wounded. A short time before I left Juilly I had in my ward of 50 beds, 25 bullet fractures, 1 brain abscess, 2 penetrating wounds of the abdomen, 4 penetrating wounds of the chest, and 1 septic knee joint, as well as several flesh wounds, closed fractures and severe sprains. Most of the wounds were caused by shell or shrapnel, with about 15% from rifle balls and a few by hand grenades. I saw only one bayonet wound and no sabre cuts.

Shell fragments and shrapnel almost always become septic, usually from the presence of clothing carried in by the missile, and the removal of the dirty, sodden mass of wool is probably more important than that of the missile itself. We found that it was of the greatest importance to examine the clothing wherever possible, in order to find out just how much we had to search for. Every case was x-rayed at entrance and if it was deemed advisable the missile was often localized later under the fluoroscope or by triangulation with two plates taken at different angles. Taken altogether, it seems to me these cases were chiefly of interest, not from an operative point of view, but as a constantly changing problem in immobilization and sepsis, although the nerve injuries were only slightly less in importance. Nearly all the shell and shrapnel cases were septic, and a moderate number showed clinically the presence of gas bacilli. It seems to me that this infection as a rule was less virulent in France than the few cases it has been my lot to see here at home, free incision almost invariably giving good result.

It has been said, and I believe correctly, that the gas bacillus varies tremendously in virulence, and that if carefully sought for, can be found in 90% of all shell and shrapnel cases. Clinically the case of gas infection is unmistakable—a dirty gray wound discharging rather thin brownish gray pus, mixed with bubbles of gas, skin around the wound showing a pinkish brown discoloration, later turning to purple or chocolate, often, but not always, with fine crepitus beneath. There is always a peculiar, unpleasant odor to the pus and moderate elevation of temperature. At the suggestion of Dr. Allan Hervey, who had put in a good deal of time in Switzerland, we exposed a considerable number of septic wounds of various sorts, including the gas infection, to graded doses of direct sunlight, beginning with 10 minutes a day, with very gratifying results, as I do not remember a single case that did not improve under this treatment.

The immobilization of these fractures, which are usually complicated with one or two discharging wounds, forms a difficult problem, and



FIG. 4.
Septic fracture of both bones of forearm.

we found that plaster, either in the form of a bivalve or else with large bows of plaster built over wire netting, was usually the best.

In a certain number of cases, particularly badly comminuted fractures of the femur, a Steinman pin is most useful and is less painful than any other form of traction dressing, while Dr. Joseph Blake's modification of the Thomas splint is also extremely valuable. We did no bone plating, as we did not deem it advisable to open new tissue and traumatize uninjured bone in the presence of severe sepsis, and it should always be remembered that to immobilize successfully in the presence of extreme comminution it is necessary to use a very long plate, thus opening up a very large area for new infection.

Our usual procedure in a fracture case was to put on traction and do nothing to the wound, not even remove the bullet, unless the patient developed sepsis, when the abscess was opened, and bullet, clothing and unattached bone cleaned out as far as possible without opening up any new area. Loose bone fragments attached by periosteum we always left *in situ*, as such fragments make a good trellis for the formation of the callus.

Fractions of the long bones by rifle bullets, although often very extensive, usually remained clean, and we found it was necessary simply to paint the wounds of entrance and exit with Tr. Iodi and treat them as closed fractures. Of course, in a certain number of cases where fragments of bone had been driven out through the skin it was necessary to remove some of the loose pieces. Retained rifle bullets were rare, and usually could be left without danger to the patient. If the bullet had "upset" and small fragments were lying beneath the skin, we made a practice of removing them, but as a rule these did not become infected. In some of the recent articles I have noticed that the writers advised leaving all retained fragments, both bullet, shrapnel and shell, unless they cause abscess formation. We usually removed large fragments



FIG. 5.
Comminuted fracture of elbow with gas bacillus infection.

of shell and shrapnel ball, which did not involve the body cavities on account of the great danger of sepsis, and I feel, as these operations are usually slight after the missile has been carefully localized, that such a procedure is justifiable. I do feel very strongly, however, that prolonged search with opening up of much uninfected tissue is far more dangerous than a retained ball.

Wounds of the knee joint are not uncommon, and are among the most trying which one has to treat. In the Spanish-American war, and in the Russo-Japanese war, the results in these cases were much better than in the earlier wars, owing to the use of small calibre bullets and antiseptic surgery, but in the fighting in France conditions have changed again, and owing to shrapnel and shell fragments, the old conditions are more nearly approached. This is true more or less in regard to all wounds, and it may be said that the war surgeon now has the problems of those old days. A septic knee joint is a terrible injury, and almost always leads to permanent disability or even death. We found that light traction helped greatly to alleviate the pain, particularly when the wounds were dressed, and I believe that suction drainage, which was suggested by Dr. Carrel is of benefit, although my experience is too limited to speak confidently. I remember very distinctly the suffering of one Morrocan whose patella had been shattered by a large shrapnel ball. I sutured his patella and removed the ball and hoped vainly for a clean result. Low lateral drainage finally resulted in a cure of the septic process and the patella held. When I left he could flex his knee about 15 degrees and had far better function than if the quadriceps had been lost.

As I have said before, the French policy is to keep the most severe type of cases near the front, and the fact that we had only three deaths at Juilly during the time I was there tends to show that the judgment of the French surgeons at the front, both as regards diagnosis and prognosis, was uniformly good.



Fig. 6.
Chateau Annel.

It was my good fortune after leaving Juilly to spend three weeks in a first line hospital, and during this period to get a little glimpse of the French soldier, and the life immediately behind the firing line. Mr. and Mrs. C. M. Depew have given their chateau, which lies only three miles back of the first line trenches, as a hospital under the auspices of the British Red Cross. Nothing has been omitted which can add to the comfort or well being of the wounded, and yet, as is proper in a first line hospital, expensive and unnecessary equipment has been reduced to a minimum. One wing has been given over to hospital purposes, and the family, doctors, etc., live in the rest of the house.

It seems very unreal to live a quiet, peaceful, country house existence, with the trenches so close that rifle and machine gun fire is distinctly audible, and where one can, by going to the end of the park, watch the French shells bursting on the German gun positions if the artillery is firing. To me, perhaps, the most interesting part of this experience was the more intimate relation into which I was thrown with things military and the French officers. There were few days when we did not see scouting aeroplanes under fire, either French or German, and we soon learned to recognize the German shrapnel bursts by the slight violet tinge to the white smoke. An aeroplane at two thousand yards elevation makes but a small mark, and though the gunners seldom bring one down, the continuous firing keeps the plane so high in the air that accurate observation is difficult in the extreme. I have seldom seen a more striking picture than one of the graceful German *Tauben* silhouetted against a clear blue sky with around and behind it thirty or forty round fleecy puffs of smoke left by a bursting shrapnel.

The cases seen were not unlike those we had at Juilly, except for the larger percentage of severe cases, some of which were moribund when brought to the hospital. It gives a greater sense of reality to see these poor fellows brought in



Fig. 7.
Ward at Chateau Annel (originally the ballroom).

fresh from the trenches, than even 24 hours later, as they were at Juilly. In fact, all through my stay in France up to my arrival at Chateau Annel the one thing that impressed me was the fact that the war seemed so unreal. Even the presence of troops and guards everywhere along the railroads was not convincing and I never could entirely eliminate the feeling of army manoeuvres.

On my way home I was able to spend a day at Boulogne and so to compare the French and the English. Boulogne is now a city of hospitals, and everywhere you turn you see hurrying ambulances, men in khaki, and Red Cross flags. In the town itself are many hospitals (I think fifteen in all) including the Casino and all the largest hotels, while all through the surrounding country are others, some under canvas, while others are in hotels, factories, etc. The work in the English hospitals seemed to be of a very high grade and in most respects similar to the French. Two differences struck me, however, one that the seriously wounded were being sent back from the first line more rapidly than among the French, the other that there was more specialization, one man doing all cranial work, and so on.

It was impossible for me to go to La Panne to see Dr. Depage and his work, owing to lack of time. Dr. Depage and his wife, who met her death so tragically on the *Lusitania*, meant a great deal to us here in Boston, and my inability to see him was one of my bitterest disappointments.

In looking back on the past four months and endeavoring to summarize in my own mind the surgical impressions I received, I think they fall as follows:—

1. Gun shot wounds do best if let alone as much as possible, unless there is some direct indication for interference.

2. All war wounds except those caused by bullets which do not "upset" will almost certainly go septic.

3. Gun shot fractures, even if septic, show remarkable powers of repair.

4. Military surgery is so different from civil surgery that those of us who would expect to serve, were this country to find itself at war, should have some definite training to fit us for our duties.



Fig. 8.
Convalescents ready to be sent to the dépôt.

THE COMMON SHOULDER INJURIES.

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It seems advisable from time to time that certain regions of the body should have their pathology and the end results of treatment studied or reviewed in order that our knowledge of the subject be brought up to date and certain obscure lesions further studied and have attention directed to them.

For the past two years it has been the author's privilege to have seen practically all of the cases of shoulder injury or disability treated in all of the rooms of the out-patient department of the Massachusetts General Hospital. These cases have been seen either directly in the two surgical rooms or by courtesy or consultation in the nerve, orthopedic or other departments of the out-patient service. In all some 450 cases have been seen and treated.

A review of these cases is here presented with the especial desire to direct attention to the so-called trivial injuries to the bones of the shoulder joint and to emphasize the fact that often

seemingly trivial or slight bone injury may be productive of very painful incapacity of long duration.

The author also wishes to emphasize the importance of early diagnosis and the payment of due respect, as trouble-makers, to such lesions as are ordinarily regarded as of minor importance, particularly such as injuries to the aeromion and the greater tuberosity of the humerus and lesions of the acromio-clavicular articulation, all of which have formerly received scant attention.

The majority of shoulder disabilities are, of course of traumatic origin. This paper will not deal with arthritis except of traumatic origin, nor with diseased conditions, such as tuberculous, but only with disability due directly or indirectly to trauma.

One very noticeable fact in this review is the great rarity of injuries to the brachial plexus. I think it can safely be said that nerve involvement in shoulder injuries is noticeably rare. Brachial plexus injuries occur only after great violence and rather more often in connection with dislocation than with fracture about the shoulder joint.

The shoulder joint, with its ample protection by large muscles, the laxity of its capsule, not allowing of extreme tension by effusion into the joint, and because of the influence of the weight of the upper extremity in the usual hanging po-

sition, aided by gravity in preventing destructive pressure of joint surfaces against each other after injury, when muscles are in guarding spasm, renders this joint one which is capable of more speedy recovery from injury than most other (weight-bearing) joints of the body.

On the other hand, in shoulder injuries the extent of the bony lesion by no means determines the severity of the immediate symptoms or sequelae. Often no grave lesion is to be found, and yet severe disabling and extremely painful symptoms may persist for many weeks or months, or a seemingly trivial bony lesion may also prolong for many months total incapacity out of all proportion to the extent of the lesion.

In this paper I propose to discuss the common injuries to the shoulder joint, especially from the point of view of treatment and probable duration of disability; as these two points are the ones on which our minds are most liable to be in doubt.

Shoulder injuries are liable to be very puzzling to one inexperienced in their diagnosis. If, however, one examines the shoulder and makes his diagnosis strictly by rigid methods of exclusion he will soon be surprised at the ease with which he can accurately diagnose these seemingly puzzling conditions.

Shoulder injuries group themselves into extra-articular and intra-articular lesions. The extra-articular are often more annoying to treat, though of course of less seriousness than the intra-articular. We believe that the extra-articular lesions merit more attention than they have formerly received.

An analysis of our series shows the order of frequency to be about as follows. This varies considerably with the time of the year.

1. Simple contusion or sprain of shoulder without fracture or other complication.

- a. Occupational.

- b. Traumatic.

- c. Secondary to some other injury or infection.

3. Fracture, insertion fracture or contusion of the greater tuberosity of the humerus or acromion.

4. Dislocation of the joint.

5. Ruptured supraspinatus tendon with or without separation of the greater tuberosity.

6. Fracture of the upper end of the humerus.

7. Chronic arthritis of the acromio-clavicular joint.

8. Occupational neuroses or pain (so-called).

9. Arthritis of the shoulder joint.

- a. Traumatic in origin.

- b. Old infectious joints.

10. Injuries to the brachial plexus.

The most common injury is simple contusion from falls or other external violence. These may or may not be accompanied by bone bruise, i.e., periostitis.

This type of case generally recovers with rest of the part, limiments and massage, in from one to four weeks, provided there is no bone injury.

There is one type of injury which is particularly painful, troublesome to treat and recovers slowly. This is the severe bruising of the greater tuberosity of the humerus, but without fracture. This injury should not be confused with the so-called sprain fracture of Ross and Stewart (to be spoken of later) as there is no separation of bony fragments, but only severe contusion of bone, probably setting up a localized periostitis. The x-ray generally shows slight roughening of the tuberosity, (Fig. 1). This



FIG. 1.

Bruising and periostitis of greater tuberosity. Old injury showing considerable localized osteoporosis. A type of injury producing prolonged disability.

injury results in very stiff and painful shoulders for one to three months, and is little affected by external applications or aspirin. They are stubborn to treat, probably because they often develop a bursitis in about one to two weeks after injury, and this adds to the discomfort and limitation of motion.

This injury has its counterpart in a similar bruising of the tip of the acromion, which gives practically the same chain of symptoms, but is less often followed by bursitis, and is nearly as painful and resistant to treatment as injury to the tuberosity.

The treatment consists of rest of the part, strapping, gentle massage with daily baking and very gentle passive motion.

In the clinics of other large hospitals beside our own, fracture of the acromion has been found to be quite common. Ross and Stewart report about 89 cases in 360 odd fractures. Three grades of severity exist.

- a. Well marked fracture with separation.
- b. Separation at the epiphyseal line.

c. Sprain fracture, which is by far the most common.

Sprain or, as we prefer to designate it, insertion fracture, about which it seems pertinent to say a few words at this juncture, is very common also in injuries to the greater tuberosity and occurred in about 30 of our cases.

Sprain fracture was first described by Callender in 1870 as a lesion in which some ligament or tendon is torn, carrying with it a flake or shell of bone into which its fibres are inserted. This injury, as would be supposed, is practically always caused by indirect violence, and is evidenced clinically by sharply localized tenderness and a small localized area of swelling over the immediate site of the lesion, and disability only such as would be caused by the pain attendant on motion.

I prefer the term insertion fracture as being more accurately descriptive of the lesion than the term sprain fracture, which is in no way descriptive of the condition.

X-ray evidence has not yet made it quite clear whether there is at first simply a tearing of a small bit of periosteum away from the bone by the tendinous or ligamentous pull, and that this then begins to proliferate, giving the fairly dense, bony(?) shadow seen, or whether actually more than periosteum is torn away primarily. Certainly in those cases described as "chip off" the greater tuberosity or acromion, the latter holds true. A larger number of x-rays of fresh injuries, followed by further x-ray one to two weeks later will settle this point (Figs. 2 and 3).

This type of fracture can be accurately diagnosed only by the systematic and careful employment of x-ray in all sprains. The x-ray may, however, fail to locate the lesion if it should not happen to be taken in the proper plane.

Acute localized tenderness over a region of tendinous or ligamentous attachment is practically pathognomonic of insertion fracture, however, and this diagnosis can be made whether x-ray verifies it or not.

I am sure that the failure to make a diagnosis of insertion fracture, especially of the greater tuberosity and acromion, has led in large measure to the confusion that commonly exists in regard to lesions of the shoulder joint. Failure to diagnose this injury also leads to wrong treatment and prolongation of the period of incapacity. Treatment should be by absolute rest of the part and practically absolute fixation for one to two weeks, followed by gentle passive motion and massage for one to two weeks longer; three to four weeks should suffice to make the arm useful again.

Definite well marked fractures of the acromion are rarer than the other two types, and are more often accompanied by injuries to the outer end of the clavicle or luxation of the acromio-clavicular or coraco-acromial joints.

The traumatic condition of the tuberosity, which is even more painful and disabling, is well marked in fracture of this part, which is generally accompanied by some rupture of the supraspinatus tendon, or else the tendon, if not torn from its insertion in the tuberosity, pulls the fragment of tuberosity upward, producing noticeable inability to abduct the arm actively from the side and much pain on all motions. The picture without x-ray would, of course, be that of ruptured supraspinatus, but with more pain. Only in rare instances, however, is the separation great enough to warrant attempts to sew the displaced tuberosity down to the head of the humerus again. The two cases in this series operated on with this end in view have practically



FIG. 2.

Typical insertion fracture of greater tuberosity.
Marked osteoporosis.



FIG. 3.

Insertion fracture of greater tuberosity with accompanying bursitis.
Slight osteoporosis.

perfect results, but with no saving in time over the less radical procedure of putting the arm up in semi-abduction by means of a double internal angular splint, one arm of which rests against the side of the body. (Described by Penhallo and Osgood, *J. A. M. A.*, July 31, 1909, vol. xlvi), and with firm pressure over the tuberosity until fibrous or bony union takes place. These arms are generally useful again in from three to six weeks.

Subacromial or Subdeltoid Bursitis. The analysis of this type of cases in our series brings out two points in the etiology of this disease which we believe have not heretofore received much attention, and which are of utmost importance in the understanding of this lesion, its treatment and especially its prognosis. These facts are as follows:—

(a). Subacromial bursitis practically never develops as the result of a fall or strain producing injury to the bursa alone, but practically every case of bursitis, if examined carefully by x-ray, will show one of the following lesions as the cause of the bursitis: fracture, insertion fracture, periostitis or simple contusion of the greater tuberosity or acromion process, hypertrophic arthritis of the acromioclavicular articulation, luxation of the articulation, fracture of the clavicle or fracture of the head of the humerus. An analysis of 200 cases diagnosed as bursitis shows that in 30% of these cases no x-ray was taken, and therefore we believe a positive diagnosis was not made and cannot be made without x-ray in every case. Analysis of the remaining 70% who had x-rays shows the great prevalence of real lesions as the causative factor in producing bursitis. X-ray was negative in only 10 cases. In 25 cases a thickened bursa was shown. In 25 a roughening of the tuber-

sity such as is produced by direct trauma. In 6 cases there was the osteoporosis of trauma. (See Figs. 1, 2, 3.) In 7 some other injury of the greater tuberosity. In 6 actual fracture of tuberosity. In 10 separation of the acromio-clavicular articulation. In 9 fracture of the tip of the acromion. In 7 insertion fracture of the tip of this bone. In 8 arthritis of the acromio-clavicular articulation. (Fig. 6.) In one case apparent calcification of the supraspinatus tendon. In 12 cases calcified nodules in the bursa.

Thus we come to realize that subacromial bursitis is not a lesion of the bursa *per se* as a result of trauma to it, but is practically always secondary to some other neighboring bone or joint involvement.

(b) Nearly 60% of subacromial bursitides are of the occupational type, *i.e.* occurring in such trades as the tailor, cigar maker, telephone operator, shoe-machinery worker, cobbler, etc., or, in other words, those whose occupation requires them to make certain fixed and limited motions with one or both arms. This has been pointed out and explained by Codman in his excellent paper as follows: Certain regular but restricted motions of the arm, as when the cigar maker rolls cigars, produces in the subacromial bursa a constant limited area of friction in the base of the bursa, which, as it proceeds, gradually produces a tuft of inflammatory tissue on the floor of the bursa, and the infringement of this tuft of sensitive tissue on the acromion as the arm is raised or lowered produces the characteristic abduction pain found in these cases.

Several young girls, telephone operators, who use certain limited motions of the arms in "plugging" in their wires into the switch board, have been treated in our clinic for this occupational type of subacromial bursitis and have exhibited the typical picture of pain on motion (especially the occupational motion), referred pain up and down the arm, inability to get arm in a comfortable position at night and limitation of motion due to pain. In these cases there is no swelling, but a point of local tenderness can often be found over the bursa or at the deltoid insertion.

Three forms of treatment will cure the three grades of severity: (a) Rest from one to three weeks will cure the mild cases, but there is always danger of recurrence on resumption of the former occupation; (b) change of occupation when this is possible in more persistent cases not cured by rest; and (c) in stubborn cases and in those who are unable to change their occupation, excision of this inflammatory tuft is the only means of giving sure relief.

This can be done easily and quickly under novocain anesthesia. The bursa is easily exposed through the separated deltoid fibres, opened; the inflammatory tuft, which is practically always demonstrable, even at a distance, to those looking on, or adhesions, which are very common, excised and the wound closed. Mus-

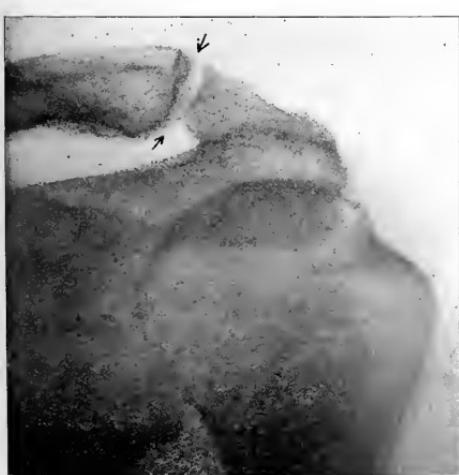


Fig. 6.

Hypertrophic arthritis of acromio-clavicular articulation. A very common cause of obscure and prolonged shoulder disability.

cles which have been in guarding spasm are best rested after operation for three to four days by putting the arm up in abduction. This is readily done by bandaging the forearm to a wooden splint and fastening the splint over the patient's head to the bed post. As soon as the wound is solid, massage, passive and gentle active motions are started and the arm should be ready for use again in three weeks.

The area formerly occupied by the inflammatory tuft now becomes covered with normal scar tissue, which, as it hardens, forms a non-tender impinging surface, which is a better working surface than the older softer¹⁾ bursa floor. The author has not had the opportunity to reopen any of these cases, but as they practically always get relief from operation, even if they return to their former occupation, I think the assumption is correct that this normal scar tissue is a better surface than the irritable bursa floor.

Acute traumatic subacromial bursitis with effusion into the bursa, causing intense pain, is not uncommon. These may also be of infectious origin as instanced by several writers and seven cases in our own series resulting directly from septic foci lower down in the arm or hand.

Cases of acute, infectious subacromial bursitis secondary to infections elsewhere in the body are not at all uncommon. In our series there were three cases following sepsis of mild degree in the fingers or hand, such as septic abrasions or splinters. One case followed a severe burn of the arm. Two cases have been found in patients after scarlet fever and one after an acute gonorrhoidal urethritis. (The bursa was not aspirated in this case and hence no culture was obtained from the infected area, but as no other fact would so well explain the case it seems fair to suspect strongly the gonococcus.)

The pain of bursal distention is so great that the arm is absolutely incapacitated and the spasm of surrounding muscles is great. Five such cases have been aspirated with a small needle with immediate relief of pain and improvement in motion.

If, after trauma, there is no excess of fluid, but acute pain, the use of the actual cautery, making point blisters over the surface of the shoulder, is of great benefit and generally gives immediate and permanent relief in acute cases, but has little lasting influence in chronic cases.

Injection of the chronically inflamed bursa with 70% alcohol has been tried on a small series of cases, but without giving any permanent relief.

The cases of subacromial bursitis secondary to injury of some neighboring structure are generally of the chronic or subacute type and more resistant to treatment. They may persist for several weeks or even months after fracture of the greater tuberosity or slight rupture of the supraspinatus tendon, and are best treated, after the primary injury is healed, by passive motion, baking and massage. Thus the whole disability may extend many weeks after the primary injury is cured.

Several cases of subacromial bursitis, developing rather suddenly after trauma or, in three cases where the patient, a nurse, was worn out physically from a succession of hard cases, showed by x-ray the dense shadows of calcareous deposits in the bursa. There was very acute tenderness over the bursa, but no signs of fluid, pain such as to require repeated doses of morphia and total inability to use the arm for from ten days to three weeks. Figs. 4 and 5 show very interestingly what may happen in such cases. Fig. 4 was taken at the height of the



Fig. 4.

Taken at onset of acute symptoms and showing massive calcareous deposit in subacromial bursa.



Fig. 5.

Same shoulder taken two years later showing complete absorption of deposit in bursa. Patient well.

acute symptoms in October, 1912. Fig. 5 was taken in April, 1915, and shows the total absorption of the calcareous deposits; the patient now being free from symptoms for the past two and one-half years. This x-ray is of great interest and importance in throwing light on the processes taking place in the bursitides.

Ruptured Supraspinatus Tendon. These cases are of great interest from the point of view both of diagnosis and results, both with and without operation.

In our out-patient clinic for the past five years there have been 32 cases diagnosed as ruptured supraspinatus tendon. These do not include cases operated on in the House. Of these 32, only 10 have been traced. All of the ten are now well and free from symptoms or disability. Three received out-patient treatment and were then recommended to the House, but were not admitted, and presumably had no treatment except rest and liniments at home. Three that were diagnosed as ruptured supraspinatus by other departments, were operated on by the author and were found to have only firm adhesions in the bursa. Those cases not traced I think we can assume are well or they would have come back for treatment.

From these facts it is evident that the absolute diagnosis of ruptured supraspinatus tendon is not easy to make and probably should be made in only a very few cases until after the subsidence of all other symptoms due to injury of surrounding structures. It seems fair to set a time limit of at least three months after injury before an absolute diagnosis can be made, the reason being that so many other injuries, such as severe strains or contusions to surrounding parts, give symptoms during that time and before their subsidence, identical with those of ruptured tendon. This is why Codman says he never operates on an acute case.

Adhesions in the subacromial bursa are often diagnosed as rupture of the supraspinatus tendon. These cases are operative, however, and therefore a mistake in diagnosis does the patient no harm. I think we can lay down the rule that all fresh cases diagnosed as ruptured supraspinatus and not improving under routine treatment after three months should be subjected to an exploration of the bursa and tendon.

Even cases of much longer standing are often relieved by operation for freeing of adhesions. This is well illustrated by the case of Mrs. M. H., 64 years old. P.H. Fell down stairs fourteen years ago and landed on right shoulder. Acute pain for three weeks. Has never been able to raise arm from side or get it up to head since, but has had little pain except on attempts at motion. Had been to many doctors without relief. P.E. A white haired, stout old lady. Marked atrophy of the right deltoid and spinati. External rotation very painful. Abduction from side possible only for a very few degrees and painful. X-ray shows distinct roughening over the greater tuberosity of the humerus. At op-

eration the bursa was found to contain several strong bands of fibrous tissue which markedly restricted motion. These were excised. One month from time of operation patient could move arm freely in all directions without pain, and in six weeks considered herself perfectly well. Operation November, 1912. Function is now normal.

Several cases of just this type have been operated on and afforded relief from long standing disability.

The symptoms are very similar to those of rupture of the tendon which has for its cardinal signs and symptoms:—

(a) History of trauma, generally a fall with attempt to save oneself, thus causing severe strain of the shoulder.

(b) Inability to abduct arm from side actively.

(c) Inability to hold arm at horizontal against pressure after it has been placed there by the examiner.

(d) Pain, especially at the deltoid insertion, and over the site of the tear in the tendon, on attempts at abduction.

(e) External and internal rotation practically normal.

These are the typical signs of rupture of the supraspinatus tendon. Adhesions alone in the bursa may cause the same chain, but are more liable to be accompanied by more pain on motion and some restriction of the rotary movements.

Recurrent Dislocation of the Shoulder. We have had under observation three cases of repeatedly recurring dislocation of the shoulder in epileptics who were under medical treatment, and while only one of these has lately consented to operation and the one ease on which T. T. Thomas' anterior capsulorrhaphy was done has now a recurrence, we believe from the study of the anatomy of the shoulder joint, both in the cadaver and the living, and the pathology of the dislocation, that this operation is the one which should in a larger series of cases give satisfactory good results. (*Annals of Surgery*, 1913-1915).

Arthritis of the Acromioclavicular Joint. This is a condition very similar in symptomatology to that of bruising or fracture of some degree of the greater tuberosity, especially in its painfulness and resistance to treatment and the later development of a bursitis. It seems to be practically always of traumatic origin, and may be entirely a solitary condition and not associated with arthritis in the shoulder joint or elsewhere in the body. We have seen over 30 cases in which it was a purely non-articular lesion following trauma. (Fig. 6.)

Absolute rest of the part with strapping and Velpeau bandage to restrict the joint entirely, together with baking and gentle massage, without passive motion for from three to eight weeks, may be expected to give relief but not always a cure. Relapses are frequent and the condition is an unsatisfactory one to treat.

Occupational Neuroses. Occupational pain *per se* in the shoulder I do not think exists. As this paper deals only with lesions immediately connected with the shoulder joint the consideration of such conditions as brachial plexus neuralgia or neuralgia or neuritis of its branches is not entered into in this discussion.

The occupational pain described in this paper is that arising wholly from lesions involving the shoulder girdle and its component parts.

I believe, however, it is not uncommon in other regions, such as neck, forearm, finger, etc., but the anatomy of the shoulder joint and the *modus operandi* of the production of the lesions thereof preclude such a thing as occupational pain or neurosis here. Careful search of such alleged cases will always reveal some such condition as bursitis, arthritis, periostitis or one of the several degrees of fracture of the acromion or greater tuberosity.

Its treatment is that of the underlying lesion. For instance, the tailor who complains of pain in his shoulder and down his arm, does not have this pain only because he is using one arm too continuously, but because he has a subacromial bursitis caused by his certain, regular, restricted motions.

So also the man who sustained a slight fall six months or a year ago, which he had entirely forgotten, and who, after perhaps several weeks of rather harder work than usual begins to have troublesome pain in his arm or shoulder, does not have this pain simply because he has been working harder, but because (as x-ray will often show) he has an arthritis of the acromio-clavicular joint due to the old trauma, or some such underlying lesion.

Cases of this kind, so often diagnosed as occupational neurosis, either because the examiner is not skillful in making the diagnosis of shoulder lesions by exclusion or has failed to have an x-ray, are very common. Only rarely do we find patients whose occupation requires strained efforts on the part of certain muscles. These people, however, may have pain at muscle insertions, and often careful x-ray search will reveal typical insertion fracture at the point of muscle attachment.

Arthritis. I can refer here only to the traumatic type. Very few of these cases are seen in the regular surgical clinic as most of them are seen in and treated by the orthopedic department of a large hospital. The subject is a broad one. There have been found, however, in our clinic certain cases which complain of stiff, painful shoulders with marked actual limitation of motion, both active and passive, occurring several months after a more or less severe injury, in which x-ray shows the typical picture of arthritis with bony overgrowth and osteoporosis. These cases have much pain and are resistant to treatment and are sure to result in incapacity of long duration extending over months and even years.

Our experience with forced manipulation, under an anesthetic, in these cases has not given a large percentage of good results, unless the process has entirely quieted down and has remained quiescent for a considerable time, for like the infectious type, they may be stirred into activity by too early motion. After varying lengths of time, from perhaps four to eight months, of relative rest, the joint may be safely manipulated and relief afforded. Earlier cases are sure to be stirred up into renewed activity and have to go through a second long period of fixation and rest before they become useful again.

For patients who can do so the resort to baking, gentle passive motion and massage affords relief for this type of ease in a shorter period than any other form of treatment, as a general rule. This must be persisted in, however, for many weeks continuously in order to be of any value at all. Such systematic and measured treatment and motion as can be obtained in a Zander department, such as the Massachusetts General Hospital affords, is of inestimable value in treating these cases. The economic saving in length of disability afforded by the careful methods of Dr. Hermann Buchholz and his assistants in this department is of incalculable value. The author would like to take this opportunity of thanking Dr. Buchholz for his interest and help in consulting over these often troublesome shoulder disabilities.

Rupture of the Brachial Plexus. As was first stated in the first part of this paper, these injuries are of extreme rarity as compared with other injuries to the shoulder joint. The records of the Massachusetts General Hospital show only 30 cases treated in the past fifteen years.

It is believed that operative exploration of the plexus should practically always be employed, provided thorough and systematic treatment by massage and electricity has failed to show improvement after at least three months' trial. Oftentimes early operation will allow of proper suture of torn nerve roots before retraction has taken place, while delay will make the operation exceedingly difficult or absolutely impossible because of the denseness of scar tissue formation.

In the small series of cases treated here the results from exploration and either freeing of dense scar tissue or suture of ruptured roots have at times been brilliant and at other times absolute failures. Early exposure gives the best results. In this series there were 15 cases of complete rupture, 7 of which were untreated because of the extent of the injury or refusal on the part of the patient. In 4, the exploration only was done, further operative procedure being impossible because of the extent of rupture or of scar tissue. Four cases had suture of the plexus or individual cords. One had an anastomosis of the musculo-spiral and ulnar nerves, with partial relief. The prognosis is not good in most cases. We believe, however, that with earlier operation more cases will be benefited.

SUMMARY.

In closing we wish to lay emphasis on the following points:—

1. Diagnosis in shoulder injuries is not made by clear cut signs and symptoms, but only in a careful process of exclusion and x-ray examination in every case.

2. X-ray is of the utmost importance in every case as it often reveals the underlying cause of a persistent bursitis to be some of the frequent lesions of the greater tuberosity or aeromion, which are very often overlooked unless especial search is made for them.

3. About 60% of subacromial bursitis cases are of the occupational type. The remaining 40% have as an underlying cause in the great majority of cases, some lesion of the greater tuberosity or aeromion.

4. The diagnosis of ruptured supraspinatus tendon should not be made until at least three months of non-improvement have elapsed.

5. Cases of long standing bursitis with adhesions give a picture identical with that of ruptured supraspinatus tendon and give extremely satisfactory results from operation.

6. Calcareous deposits in the subacromial bursa may be spontaneously absorbed.

7. The term insertion fracture should be substituted for the non-descriptive term of sprain fracture.

8. Occupational neurosis *per se* does not exist in the shoulder joint.

9. Injuries to the brachial plexus are rare. The percentage of patients benefited will be greatly increased by early exploratory operation.

10. Slight injuries to the greater tuberosity and aeromion process and arthritis of the aeromio-elavieular joint are of far greater importance than generally supposed in prolonging disability after shoulder injuries.

11. The author wishes to lay especial emphasis on the importance of these seemingly trivial injuries to the shoulder joint as factors to be considered in diagnosis, prognosis and treatment.

it into a needle. This method meets the requirements of any case, whereas when using needles, cases arise where no vein can be seen. The use of sodium citrate was discussed at the time of introducing this tube, but it is absolutely unnecessary and therefore is not advisable. I have by this method transfused more than 70 cases, including a great many new born babies, and a failure to transfuse the patient has not been encountered.

Technic. The skin over veins just below the elbow in the arm of the donor and recipient is injected with novocaine. The veins are exposed cleanly through incisions not over $1\frac{1}{2}$ inches long. Two ligatures are placed under the veins, but not tied, one above and one below. A tourniquet is now placed on the donor's arm tight enough to give venous congestion and still allow arterial blood to flow in. This vein is now tied off proximally, and the distal ligature is left to be used as a clamp by merely raising it a little after the vein is opened. If there is no assistant present, the weight of a hemostat hanging from the ligature will control the vein.

The donor's vein is now transfixed by a cataract knife and a slit made. The cannula of a tube is inserted into the vein of the donor and held upright until filled by venous pressure. (Fig. 1.) This usually takes not over two or



FIG. 1.

three minutes for a 250 c.c. tube. If not filling well it probably means that the tourniquet is too tight, or that the end of the cannula is against a valve or the side of the vein. The donor is instructed to shut and open his hand tightly and slowly. This, perhaps, hastens the inflow.

While the tube is filling, the vein of the recipient (without the aid of a tourniquet) is tied off distally, the proximal ligature being used as a clamp, and the vein opened. By this time the tube is full and the tourniquet having been loosened is withdrawn and held on its side with the side-tube uppermost to prevent the blood from running out. (Thumb over end of side-tube, finger over cork, Fig. 2.) The cannula is now inserted into the vein of the recipient and held in an upright position. (Thumb under side-

TECHNIC OF TRANSFUSION BY MEANS OF GLASS TUBES.*

BY A. R. KIMPTON, M.D., BOSTON,
AND
J. HOWARD BROWN, M.S., BOSTON.

THE following method of transfusion is one of the many indirect methods and is now very broadly used. Recently descriptions of glass tubes closely resembling this one, but leaving out essential features, have been published. The method requires an incision, but can be combined with needle operations if desired, by merely cutting the cannula end of the tube flush and fitting

* From the *Harvard Medical Bulletin*, page 34, May, 1915.

bar at junction with cylinder, finger over cork. (Fig. 2.) (Fig. 4.) Be sure the vein of the re-



FIG. 2.

cipient is bleeding before inserting cannula.) The little angular forceps is a great aid in introducing the cannula into the vein, especially when the lumen is small. (Fig. 3.) An actual can-



FIG. 3.

tery bulb is attached to the side-bar, and by a little pressure the tube is emptied. (Fig. 4.)



FIG. 4.

The cannula is withdrawn while there is still a little blood left in it. More tubes may be filled and emptied if desired, using the same veins. Pointing the cannula toward the hand of the donor is better than toward the heart, though both ways may be used. The veins are usually tied and cut, but if desired the slit may be sutured. If arterial blood is to be preferred the radial artery of the donor may be used, as was originally done.

Another use for the tube is in bleeding a patient. For this purpose the tube is used as in the donor's arm and when full the cork end is depressed, the blood emptied and the tube again

raised, without removing the cannula from the vein. The tube may in this way be filled and emptied a number of times and without removal from the vein.

As to the vein best to use in the recipient: if the patient is very thin I am in the habit of using the internal saphenous vein, in fact it is my preference under most conditions. At the same time, the vein in the arm is perfectly suitable. Using any means of suction in filling the tube seems to be of no advantage as the tubes fill readily. Furthermore, the walls of the vein can easily be collapsed by a little too much suction. The pump is boiled and therefore the operator can handle it himself.

Paraffining the Tubes. The tube is wrapped in a towel and sheet wadding, sterilized in an autoclave, and the paraffin mixture is sterilized either by boiling in a water bath or in the autoclave. (Vincent's mixture, stearin, paraffin, and vaseline in the proportions of 1-2-2. 54 degree paraffin may be used as well.) Personally I always keep my tubes paraffined ready for use, and they are paraffined by a nurse. Having scrubbed up, someone lays open a sterile package, the paraffin is kept melted in a water bath, and the tube is equally and moderately heated over one or two alcohol flames. (Not too hot. I find a Bunsen burner too hot.) Then remove the cork and pour in a lot of the melted mixture, the more the easier to do (50-60 e.c. for a large tube.) Allow this melted mixture to run around inside the tube and over the surface of the cork, and a little to run out of the cannula. Then turn it upside down in such a way as to allow all the paraffin to run back into the tube and out the side-bar into the paraffin jar. With a teaspoon seal the junction of the cork and glass on the outside with paraffin. It is much better and easier to let the paraffin run back out of the cannula than to suck out the last drop with a piece of gauze, as first described. Take an alcohol sponge and rub over the tube that it may cool more quickly.

The tube is now replaced in the sterile package and pinned up ready for use. I always clean my own tubes, and there is no necessity for breaking them. However, should a cannula happen to be broken, it can be repaired.

Cleansing. If you have very hot running water the tube can be cleansed with the greatest ease. If you allow the blood to stand in the tubes, or the tubes are left in water, it will be difficult. When through with the transfusion, have steaming hot water from the tap run through the tubes. I do this before removing my gloves. First, allow the water to run through the cannula end so that the paraffin melts and carries the blood back with it into the tube. The cork being removed, the water is allowed to run out. The rest of the paraffin is cleaned out in the same manner. Then pouring in some tincture of green soap with the hot water, shaking the tube, and afterward rinsing until the tube is

clean, is all that is necessary. The tube is then pinned up ready to be re-sterilized.

[P. S. One criticism of this method has been that the veins are tied off, and another, that it is necessary to make incisions.

In regard to the first criticism, I no longer tie off the veins, but make a small slit in the vein, and at the end of the operation I tie this slit off laterally with fine silk. With rare exceptions this can be done, leaving this vein intact.

In regard to the second criticism, cases certainly arise that are so badly bled out that it is practically impossible to insert a needle into a vein, and, therefore, an incision is necessary even with the needle methods.

Again, we all know that at times much difficulty arises in inserting needles even into well-distended veins. A small incision makes the method certain and accurate. Recently I have had the opportunity to transfuse a patient by bringing out all these points, the patient having previously been transfused in another city by syringe methods. In this case it had been necessary, by the syringe method, to cut down on the vein of the recipient, and there also had been much difficulty encountered with the vein of the donor, so that the operation by the needle method lasted about two hours, while the operation by the above method, giving practically the same amount of blood, lasted fourteen minutes. In cases such as this, shortening of the operation is a decided advantage].

PREVIOUS ARTICLES.

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THE USE OF THE SCHICK TEST IN A CHILDREN'S INSTITUTION.

BY HARRY LINENTHAL, M.D., BOSTON,
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AND

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DURING the months of October and November, owing to the prevalence of diphtheria in Boston, it was suggested that all the children in the Home for Jewish Children in Dorchester, one hundred and twenty-six in number at that time, be immunized by prophylactic doses of antitoxin. The occurrence of a case of communicable disease in this Home is a very serious matter, inasmuch as all the children are excluded from school for a period corresponding to the incubation period of the disease, and the children are thus deprived of their schooling for consid-

erable lengths of time, even if the child afflicted with the disease is immediately removed from the Home. While the immunity conferred by antitoxin is not lasting, it was thought that by thus immunizing the children and tiding over the period of the prevalence of the disease, the chances of the occurrence of cases of diphtheria in the Home would be minimized.

Recent researches, particularly those of Schick of Vienna and Park of New York, had shown that large percentages of children, varying from 50 to 80%, possess sufficient antitoxin in their blood serum to make them immune to diphtheria. The administration of antitoxin to all the inmates of the Home would therefore have meant that many children who were naturally immune would have been subjected to this needless procedure. To separate the immune from those susceptible to diphtheria we utilized the test devised by Schick for that purpose.

The Schick test consists of injecting under the superficial layer of the skin, usually on the flexor surface of the upper arm, one-fiftieth of the dose of diphtheria toxin required to kill a guinea-pig of two hundred and fifty grams. Schick originally used 0.1 c.c. of normal salt solution for the dilution of the toxin. We followed the modification of Park of New York who used 0.2 c.c. of normal salt solution as a diluent. A fine short pointed platinum needle was used for the injection. A raised bleb appears at the point of the injection, which disappears in a few minutes. Within twenty-four to forty-eight hours after injection a fairly well circumscribed area, bright red, with a pale, slightly indurated center, appears at the site of the injection in individuals susceptible to diphtheria. This reddened area blanches on pressure and on stretching of the skin. It is, therefore, important in examining for the reaction, to flex the arm, otherwise the stretching of the skin of the extended arm may cause a well-marked reaction to disappear. We noted in a great many of the cases, on stretching the skin and blanching the reaction, a faint circle of pigmentation around the point of inoculation well within the circumscribed area of redness. The degree of the reaction varies inversely to the antitoxin contents of the blood, and we had all grades of reaction, from very mild to well marked. The variation, consists chiefly in the size of the area of redness and in the intensity of the coloration. This reaction lasts for several days, and gradually fades, leaves a pigmented, slightly scaling area which may persist for two weeks or more. The reaction is not accompanied by any constitutional symptoms or local discomfort. All the children who gave positive reactions, whether strong or mild, were given immunizing doses of 750 units of antitoxin, and their susceptibility tested again at various intervals, by the further administration of toxin. We found that after four weeks 50% of those to whom antitoxin had been administered, gave a positive reaction, indicating the disappearance of the immunity conferred by the

antitoxin. In several cases the immunity persisted after eight weeks, and in six of the children immunity still persists, five months after the administration of the antitoxin.

Previous to starting the tests, cultures were taken from the noses and throats of all the children. Three carriers were discovered; two of these gave negative Schick reactions. One of the carriers gave a positive reaction; on testing out the organism, however, it was found to be avirulent.

TABLE SHOWING RESULTS OF THE SCHICK TEST.

Age.	No. of Cases.	Number Positive.	Number Negative.
5	1	1	0
6	6	3	3
7	10	2	8
8	20	9	11
9	9	2	7
10	20	4	16
11	17	6	11
12	13	2	11
13	12	5	7
14	11	2	9
15	4	0	4
16	3	0	3

Of the total one hundred and twenty-six children only thirty-six, or approximately 29%, gave positive reactions. Ninety, or 71%, showed themselves by the negative tests to be immune to diphtheria. Instead of administering antitoxin to one hundred and twenty-six children we had to give it only to thirty-six, and thus saved for the state considerable antitoxin and avoided the subjecting of the immune children to the annoyance and the danger, however remote, of the unpleasant effects that are apt to follow the administration of horse serum.

Five months after our first test, we injected again diphtheria toxin to all the children and we found our results strikingly uniform with our first tests, with the following exceptions:

Six of the children who on the first examination gave positive reactions, and who received immunizing doses of antitoxin, gave, five months later, negative reactions, showing the persistence of the antitoxin immunity. Of these, two were eight years old, one nine years old, two ten years old, and one eleven years old. One child fourteen years old, who gave a negative reaction on our first examination, gave a positive reaction on the second examination. With the exception of this last case all the children who gave negative reactions the first time, gave negative reactions on the second test five months later.

We are unable to explain the one case which showed itself immune on our first test and was found susceptible in a subsequent examination five months later.

From the general uniformity of the reaction at an interval of five months this test is of practical value in all the children's institutions, even in the absence of diphtheria. A record can be kept as to which of the children are immune

and which are susceptible. Antitoxin could then be promptly administered to the non-immunes should a case of diphtheria occur in the institution.

A fact worthy of note is the persistence of immunity in six children for as long a period as five months after the administration of antitoxin. We expect to keep these children under observation and test their immunity from time to time.

SUMMARY.

1. Of one hundred and twenty-six children, ranging in age from 5-16 years, thirty-six were found susceptible to diphtheria and ninety were found immune.

2. Antitoxin of 750 units administered to the non-immune produced an immunity which did not last over four weeks in 50%, in several as long as eight weeks, and in six children the immunity conferred by the antitoxin persisted after five months.

3. With the exception of the six children with the persistent antitoxin immunity and one child who gave negative reaction the first time and a positive the second time, the results of two tests, five months apart, were uniform.

4. The test is of great value in determining susceptibility to the disease and thus serves as a guide to determine in the event of exposure to diphtheria, who should and who should not receive prophylactic doses of antitoxin. Persons naturally immune will thus be saved the annoyance and the possible disagreeable results apt to follow the injection of horse serum.

In carrying out this work we are indebted to the State Department of Health for furnishing us the diphtheria toxin and to the Boston Health Department, who examined all our cultures and tested the diphtheria organisms for virulence.

Clinical Department.

A CASE OF ANTERIOR POLIOMYELITIS WITH MULTIPLE PARALYSSES, INCLUDING THE HITHERTO UNRECORDED INVOLVEMENT OF THE LEFT DIAPHRAGM.*

By PHILIP H. SYLVESTER, A.B., M.D., NEWTON, MASS.,

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*From the Medical Service of the Children's Hospital.]

It is not often, in a hospital like the Children's, that a patient may go through various services and departments for a period of several months with a mistaken or incomplete diagnosis.

* Received for publication on May 31, 1915.

This case is unique in being the only one of its kind on record, despite a comprehensive search of the literature, a case presenting rare difficulties of diagnosis owing to an unusual combination of signs and conditions, which obscured the complete picture through several services at our hospital, and cleared up finally, when obscuring conditions had ceased, making the diagnosis obvious.

Following is the case:—

J. B. Male, aged 4. Entered the orthopedic outpatient department of the Children's Hospital March 4, 1914, with the following history:—

Family History. Parents well, 5 brothers and 3 sisters well, no deaths, miscarriages or contagious diseases, no exposure to tuberculosis.

Past History. Full term. Normal delivery. Breast fed one year, measles at 4.

Present Illness. In November, 1913, had what was called "gastritis," following which both legs became useless. Has improved slowly but steadily since. Lately has seemed feverish.

Physical Examination. Physical examination shows flabby, pale child, temperature 100. Left lower lung has an area of dullness, bronchial breathing and bronchial voice sounds; respiration 36. Otherwise negative except for legs. Legs both thin, flabby, atrophied. Left: fair power in thigh, slight in quadriceps. Foot: long extensors and peroneals have some power, tendo Achillis markedly contracted. Foot in equinovarus. Right: only slight power in flexors of thigh, none in adductors, little in abductors, none in quadriceps. Foot held in stiff equinus, from tendo Achillis contraction. Hips in place, no flexor deformities.

Diagnosis. Old infantile paralysis of both legs, question of pneumonia. Referred to House Medical. Entered the medical service of the late Dr. Rotch, where the following additional physical findings were noted. Lungs, left back, from apex to mid-scapula, dull with bronchial breathing; from angle of scapula to base, dull with diminished bronchial breathing and medium moist rales. Liver 1 $\frac{1}{2}$ cm. below costal border. Right knee jerk present, Kernig present on both sides, no Babinski or clonus. White count 16,000; hgb. 75.

Diagnosis. Pneumonia, question of fluid, old infantile paralysis.

March 6. Aspiration left chest, no fluid obtained.

March 7. Comfortable, hungry, signs same, discharged home (in country).

Diagnosis. Unresolved pneumonia.

April 11, 1914. Returned to the hospital with the following story: Was pretty well after discharge, but has had more cough in the day-time than before, no whoop or croup; has had no fever, but much coryza. Physical examination showed 20 teeth, tonsils very much enlarged, few small glands of the neck. Chest symmetrical in shape and expansion, no bulging, heart 1.5 by 7 cm. Lungs resonant throughout; coarse, moist rales throughout. D'Epinie's sign to the 5th thoracic vertebra. Abdomen soft, tympanitic, liver 2 cm. down, spleen not felt. Abdominal wall very lax, extremities as at previous note, except that tendo Achillis contractions were more pronounced, reflexes: P. = and R. to L. and D. Right knee jerk present, left absent; no Kernig or Babinski, no clonus. White count 16,300. Von Pirquet negative.

April 12. Left base dull with distant breathing, many rales, breath sounds diminished.

April 13. Left chest a little more dull than right. Marked difference in respiration, which is barely heard on the left, much more air entering right than left. Heart 3 $\frac{1}{2}$ cm. to right. Abdomen very much distended.

Diagnosis. Probable pleurisy with effusion in the past with present adhesions, fibrosis(?). On the same day the case was used for teaching, and the following diagnoses were considered:—

- (1) Blocked bronchus.
- (2) Pneumothorax.
- (3) Thickened pleura.
- (4) (and most probable) Bronchiectasis and emphysema.

On orthopedic consultation, paralysis of left intercostals was considered. Sputum examined, negative for T. B.

April 15. Air enters both sides alike; percussion on left side, modified tympany.

April 23. Note on lungs. Fremitus increased at angle of scapula to left axilla. Tympany marked from left axilla to base behind and to ant. ax. line. Fremitus here slightly less. Just inside spine of scapula breath sounds are broncho-vesicular; below, breath sounds are clear but very faint.

April 27. Lung note. Left, normal resonance above, increasing to tympany at about angle of scapula, strikingly similar and continuous with abdominal tympany; breath sounds clear but very much diminished over tympanic area; lower border of lung not made out. X-rays M 1468 and M 1469 show hollow viscera, containing much gas, no bismuth, behind heart shadow and into left axilla to third space. Diaphragmatic shadow not made out. (Photo "A.")

April 29. Fluoroscopic report, Dr. Holmes. Fluoroscopy shows high, rigid diaphragm on left at level of 4th rib in front; above, lung is clear. Heart displaced to right; below diaphragm is a large gas bubble.



ble, apparently in transverse colon. The amount of gas is unusual. Stomach is empty.

Diagnosis. Paralysis of left diaphragm and relaxation of the bowel.

The difficulties attending the complete diagnosis (as far as the diaphragm is concerned) in this case were obviously due to the changing conditions, whose physical characteristics were such as to mask any symptoms or signs referable to the diaphragm. It is reasonable to suppose that the following conditions occurred in the order named:—

First. Paralysis of diaphragm was present from the beginning and concomitant with the other paralyses noted.

Second. A broncho- or lobar pneumonia occurred in which: (a) the lung expanded and pushed the diaphragm down, (b) dullness resulting therefrom masked any signs referable to the diaphragm.

Third. Delayed resolution over a long period still masked the diaphragm.

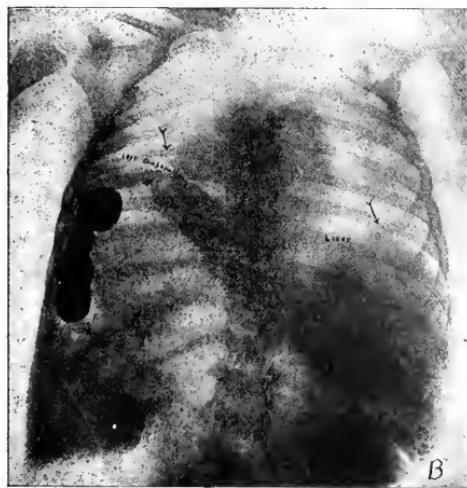
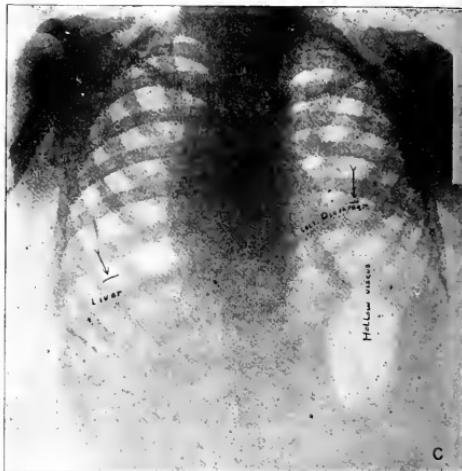
Fourth. Complete resolution allowed the diaphragm to be pushed up by the gas in the intestines, thus revealing the true condition.

In November, 1914, the child reentered the orthopedic service for tendon transplantation, when another physical examination and another x-ray showed conditions practically as on April 27. (Photo "B.")

April 9, 1915. Has been pretty well since last visit, has gained in weight and had only one cold last winter. Has no pain in legs but cannot use them. Abdomen usually protuberant, but pretty flat

away respiration. Litten's sign doubtful, very much less air enters left than right lung.

Muscular effort of shoulder girdle and intercostals is apparently the largest factor in respiration on the left. There is now a distinct groove along the 7th, 8th, and 9th ribs in front, producing a shallow, wide depression. Heart $3\frac{1}{2}$ cm. to right of mid-sternum. Left border not made out, owing to tympany. Abdomen slightly distended, very lax. Left side wholly paralyzed, right, no reflex in middle segment of rectus. Distinct bulge to left when sitting. Liver extends to costal border. (X-ray "C," and photograph "D").



some of the time. Lungs: right, no abnormalities; left: base, tympany to third space in front with absent respiration; base in back from mid-axillary line, slightly dull to the 8th rib with diminished far-

Final Diagnosis. Anterior poliomyelitis resulting in multiple paralyses, including the hitherto unrecorded involvement of the left diaphragm.

AURICULAR FIBRILLATION AND COMPLETE HEART-BLOCK.

BY PAUL DUDLEY WHITE, M.D., BOSTON.

[From the Massachusetts General Hospital, Boston.]

THE coexistence of complete heart-block and fibrillation of the auricles is uncommon. In 1913, Gallavardin and Dufourt recorded a case and cited thirteen other cases in the literature. The present report is made of a patient with auricular fibrillation in whom, during the administration of digitalis, there was a decrease in the degree of heart-block from complete to partial, accompanied by a change in the character of the ventricular complexes of the electrocardiogram and coincident with marked improvement in the patient's condition. The *R* deflection became more acute and of greater amplitude and the *T* deflection flattened.

CASE REPORT. E. H. B., 54 years of age. Family and past history unimportant except for an attack of "rheumatism" in 1904. Lues denied. Little tobacco; very little alcohol.

Cardiac symptoms began in 1908 with palpitation off and on. Dyspnea on exertion during the past year. Left sided hemiplegia April 30, 1912. At this time his pulse was slow, but there is no record of its rate or rhythm. The hemiplegia did not clear up for months, but at present (April, 1915) there is no sign of it. In April, 1914, an irregular pulse of 100 was found and digitalis was given. After three weeks, during which the tincture was administered in the dosage of 15 to 30 drops daily, a pulse rate of 28 was found and the digitalis was discontinued. On Oct. 21, 1914, because of distress on exertion, the patient consulted Dr. Putnam, who discovered an irregular pulse of 44, six months since the last digitalis had been taken. From this time until the middle of January digitalis was given in the dosage of gram 0.1 to 0.2 daily. On the 14th of November the pulse was 28 and regular; on the 20th it was 26, and on this date the blood pressure was 137 mm. mercury systolic and 75 mm. diastolic. On November 25 an electrocardiogram (Fig. 2) and a polygram (Fig. 1) showed a complete heart-block with a ventricular rate of 27 and auricular fibrillation. At this time

the patient felt very badly and was dyspneic and weak. Rest in bed and continuation of the digitalis resulted in pronounced improvement in the general condition coincident with a gradual rise in pulse rate. On Jan. 6, 1915, another electrocardiogram (Fig. 3) was taken; this showed an irregular ventricular rate of 47 per minute, with persistence of the auricular fibrillation. In the electrocardiogram the change in the character of the ventricular complexes is clear. On April 10, 1915, the heart rate was regular at 35, and on April 27, two months since any digitalis had been taken, an electrocardiogram showed a regular ventricular action at 37 with auricular fibrillation. On this latest date the patient felt well and was able to work in his garden. Atropin gr. 1-50th injected subcutaneously produced no increase in rate while the pulse was regular at a rate of 43 on May 24, 1915. Dryness of the mouth was marked one-half to one hour after the atropin. Exercise also failed to change the rate.

Physical examination April 10, 1915, showed a large heart with apex impulse felt in the sixth space and with a loud rough systolic murmur heard at the apex. No thrill. No increase in supraventricular dullness. No edema. Pupils reacted normally. Knee jerks present and equal. Grips equal. Wassermann test negative.

SUMMARY.

In a patient showing heart-block and auricular fibrillation the heart rate rose from 27 with complete block, to 47 with partial block during the administration of digitalis and coincident with marked clinical improvement. The ventricular complexes of the electrocardiogram changed in character simultaneously with the decrease in the degree of block, the change in the *R* suggesting a more normal conduction in the ventricle.

The spontaneous return to a complete block has been accompanied by a continuation of the patient's good health.

The block is not vagal in origin, atropin having no influence on it.

Drs. W. H. Smith and Ralph Putnam very kindly made possible the report of this case.

REFERENCE.

Gallavardin,L., and Dufourt, P.: Bull. Soc. méd. d. hôp. de Lyon, 1913, Vol. xi.

Fig. 1.

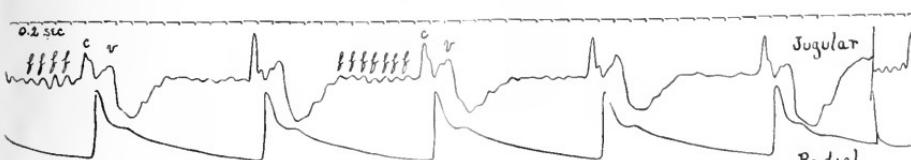


FIG. 1.—Polygram of patient taken November 25, 1914. Jugular pulse above, radial pulse below. Note coarse fibrillation waves in the jugular record (iii). Time interval, 0.2 second.

Fig. 2.

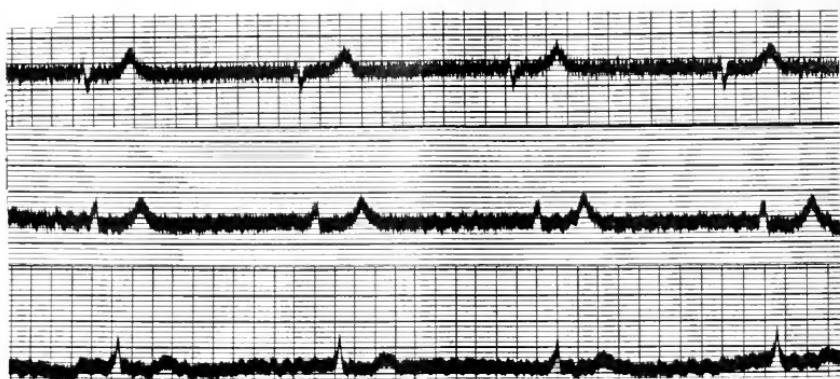


FIG. 2.—Electrocardiogram taken November 25, 1914.
A. Lead I. B. Lead II. C. Lead III.
Abcissae 0.2 seconds; ordinates 10^{-4} volts.

Fig. 3.



FIG. 3.—Electrocardiogram taken January 6, 1915.
A. Lead I. B. Lead II. C. Lead III.
Abcissae 0.2 seconds; ordinates 10^{-4} volts.

New Instruments.

SUCTION AND IRRIGATION APPARATUS FOR THE DIAGNOSIS AND TREAT- MENT OF THE ANTRUM OF HIGHMORE.

BY JOSEPH PRENN, M.D., BOSTON.

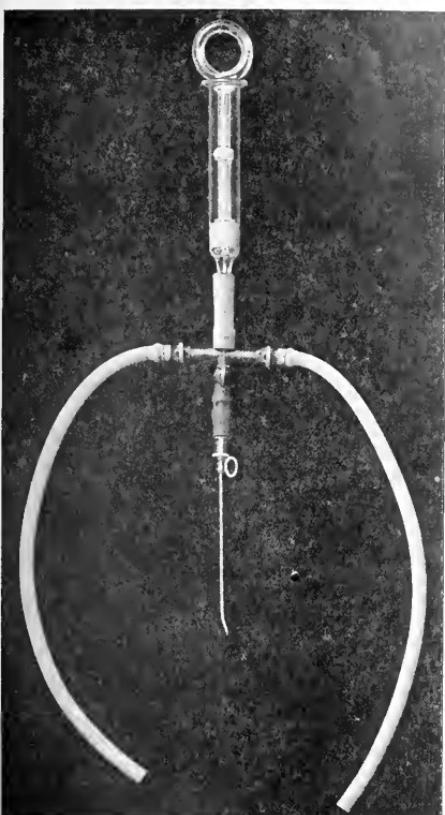
THE apparatus as shown in the cut is manipulated in the following manner:

After the trocar, size 8 or 10 French, is introduced in the usual manner under the inferior turbinate and the inner wall of the antrum punctured, the stopcock nearer the rubber tubing, the free end of which is immersed in the solution, is opened and

the fluid is drawn into the syringe. This stopcock is closed and the middle one opened. The fluid is forced into the antrum through the trocar and then withdrawn together with the contents back into the glass syringe by suction. The middle stopcock is then closed and the last one opened, which allows the syringe to empty itself through the other rubber tube. The same process is repeated if necessary.

When more irrigations are required on subsequent visits, the trocar can be replaced by an ordinary eustachian catheter attached to the rest of this apparatus.

The patient has proven to be a valuable assistant by holding a small basin and a cup, containing the solution, in it—the end of one rubber tube being in the cup and the end of the other in the basin.



In this picture the middle stopcock only is open, and the syringe is ready for suction.

The advantages of the apparatus, and its method of application over the old ones, appear to the author to be the following:

1. You get the contents of the antrum alone by suction with no admixture of pus or mucus from the nasal chambers, or naso-pharynx into the glass syringe ready for inspection, before it is emptied into the basin.

2. You do not have to flood the patient in order to have the fluid forced its way through the natural opening. You simply pour out into the antrum approximately as much fluid as it can hold. This adds comfort to the patient. (For the sake of demonstration, in one of my early cases, I poured the fluid of the syringe out into the antrum and removed the apparatus. I then introduced the apparatus again and got my fluid back into the syringe by suction.)

3. You leave the antrum dry through suction every time, much the same as Nature does it constantly through the respiratory efforts. By the other methods the antrum is not left dry after irrigations. To make the opening low

down at the floor of the nose will not always help, for the antral floor is many a time lower than the floor of the nose. Besides, the wall of that region is thick and hard, and therefore more painful to break through.

4. You do not have to make a large opening, so the patient can stand the operation much better under local anesthesia.

5. The author believes that you can clear the antrum up in a much shorter time by this method.

6. In subacute cases, where thick mucus and pus were formed, suction appeared to be of more value in draining the antrum.

7. By suction a vacuum and passive hyperemia is formed in the antrum, and that ought to be a distinct advantage.

A NEW METHOD OF TREATING FLAT-FOOT.

BY PEREZ B. HOWARD, M.D., NEWTONVILLE, MASS.

MANY of us dislike to see ourselves in print, especially after so many able men have done so much work on this well-known subject, but after some time of experimenting I have a little to add, which perhaps may be of value.

Placing a foot in a shaped plate, steel, leather or felt (the last two become about the same as the first in time) never appeared to me as curative, although they do give relief, as they all act as a splint to the weakened members. While they may be made to fit the arch of the foot at rest they cannot adjust themselves to the changed contour when the arch of the foot is flexed or extended, and tend to hinder by their splint-like effect the free muscular action necessary for a cure.

After having trouble with my own right foot, I decided to try an experiment which seemed to me would give support to the arch in all positions and free play to the muscles, at the same time being perfectly flexible and self-adjusting.

Taking a cast of my foot I made a model and had a rubber factory make up several arch supports or shaped rubber bulbs filled with air. These I covered with leather and tried them out in my own shoe.

Much to my satisfaction, it felt good and I wore it all day, walking on frozen ground to make my calls as my auto was being repaired. At the end of the day it was no more noticeable than the glasses on my nose, and to my relief, I was not nearly as tired as I should have been without the pad and had no pain in my foot and leg.

Since the first experiment I have made several minor changes, but in general the arch above conforms to the arch of the foot below, it fits the shoe, and on the inner side it is reinforced to

prevent bulging. This is encased in leather, which is extended under the heel for an anchor, so to speak, and forward it tapers off just a little in front of the arch support.

The support is made and encased in such a way that the air is held absolutely under the arch of the foot, and as the contour of the arch of the foot changes, the arch support changes also, still exerting on the arch of the foot the same upward pressure. It allows free muscular action all of the time as the foot is flexed or extended in locomotion.

My instructions to my patients have been to get a proper flexible anatomical shoe with a low heel, and if they have a fallen or weakened arch to wear the inflated arch support. They must not expect a cure from this alone, but must exercise their feet by walking every day from three to four miles, being careful not to toe out, and trying to bring the big toe into play. If the patients will do this, I think they will be pleased with the results and the inflated arch may shortly be discarded.

For the acute flat-foot from falls, etc., rest is the best remedy, after which an inflated arch support might help, but my experience in such cases is slight.

My experience with trouble in the anterior arch has been only when there has been trouble, also with the longitudinal arch, and by correcting the latter with an air arch support the former has readily cleared up. A bulb could easily be made though to extend under the anterior arch. In my practice it has not been required.

In regard to the life of such a support, I would say, that we had, at first, some difficulty in making them to stand the weight, but now they do so fairly well, and it is a simple matter to inflate or deflate to any desired elevation. They may also be filled with fluid, in which case they will outlast two or three leather covers and not lose their elevation.

With a few variations in size, they can be made to fit the average feet, and as I have previously said, the inflation may be changed as desired, but as they are more or less self-adjusting, it is surprising how little trouble there is in fitting them.

In closing, I desire to call your attention to a few of the advantages of such a support and which I believe are not combined in any other:

1. They are very light, even when fluid filled.
2. Flexible in any position.
3. Will not wear the shoes.
4. Do not mat down or lose life, as metal or padded arches do.
5. The pressure in the arch is a shifting pressure and changes with the arch of the foot.
6. They can be used from the first with comfort and relief.
7. The elevation is easily changed.
8. Above all, it allows the muscles and tendons to act freely in all movements of the foot, and thus regain their lost strength.

Reports of Societies.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

SECTION ON GENERAL MEDICINE.

MEETING OF MONDAY, APRIL 26, 1915, AT 8.15 P.M.

DR. JAMES E. TALLEY in the Chair.

REPORT OF A CASE OF SOLITARY ABSCESS OF THE LEFT LOBE OF THE LIVER OF UNCERTAIN ORIGIN CURED BY OPERATION.

BY DR. JOHN H. JOPSON AND DR. CLIFFORD B. FARR.

DR. FARR: The subject of the report was a man of thirty-six years of age, born in the Crimea, but nine years resident in this country. He was admitted to the hospital on account of pain in the epigastric region. His illness was attributed to an attack of grip eight weeks prior to admission. He apparently recovered from the acute attack, but four weeks before admission began to suffer with pain in the epigastrum, constant, but increased on movement or when standing. Ingestion of food or water afforded some relief. There was a moderate loss of weight and slight dyspnea. He had never had diarrhea while in Russia, but had had an attack six years ago after coming to this country. It was not definitely dysenteric in type. He had pneumonia three years ago; had also suffered from pleurisy with effusion. Two years ago he had "malaria." The patient had no bad habits. He took an occasional drink. General examination was largely negative. There was slight pallor; long flat chest with some impairment of resonance not definitely localized. The abdomen was scaphoid; the walls were relaxed. In the epigastrium a hard rounded mass continuous with the liver was felt. This moved with respiration and apparently bore no relation to the stomach so far as could be determined by inflating the latter viscera. The mass was dull, the size of a small orange and extended more to the left than to the right of the median line. On palpation it gave a sense of fluctuation as of a tense, fluid containing tumor. It was not very tender. Before operation the mass was thought to be either a tumor or an inflammatory condition. The temperature, pulse and respiration were normal throughout; the urine showed a trace of bile pigment and a few casts; blood count, practically normal. The stomach contents showed a marked hyperacidity; total acidity 128; blood pressure 160 (systolic). At operation a fluctuating tumor was discovered, occupying the left lobe of the liver. This area was walled off with gauze to encourage the formation of limiting adhesions, and three days later the abscess was aspirated and about eight ounces of brownish pus evacuated. Drainage was instituted. The cavity measured $4 \times 1 \times 2\frac{1}{2}$ inches. Examination of the pus showed no hooklets, no amebae and no polymorphonuclear leucocytes. Cultures were also negative. The previous history of diarrhea suggested the possibility of an amebic abscess from which the causative organism had disappeared. Amebic dysentery prevails endemically in the Crimea, but the patient gave no history of any such disease. He was discharged cured on July 23, 1913, about six weeks after operation.

DR. JOFSON: Dr. Farr has given the complete history of the case. I could not satisfy myself before operation of the connection of the abscess with the liver, probably because it sprang from the left lobe. It was more movable from side to side than from above downward. It seemed to increase in size during the patient's stay in the hospital. The process appeared to be progressive and the tissue rapidly breaking down. Examination of the brownish turbid fluid showed few polymorphonuclear leucocytes, but fragmentary tissue characteristic of liver abscess was present. The operative diagnosis was made of solitary abscess of the left lobe of the liver of undefined origin. It was thought an infection may have been present in which the organism had died out. This was not considered very likely, however, because one of the usual causes of the common infections of the liver was present. By exclusion we felt that the condition was an amebic abscess of the liver. The man had had diarrhea and had come from a part of Russia where the amebae are found. It is not improbable that there had been an old amebic infection of the bowel with secondary infection of the liver. The two-stage operation, recommended when the liver is not adherent, was done. It is simple and free from danger. Some 60% of solitary abscesses of the liver are sterile and in about 20% no amebic organism or bacterium is found. My experience with abscesses of the liver is very limited. In one case the condition was associated with subphrenic abscess, and in that case the liver broke down secondary to the abscess and the patient died. This was the only case of solitary abscess of this type I have, myself, ever operated upon. I have seen a few others. The first one I saw operated upon was when I was a student. The technic in those days was not very safe; a large vein was wounded and the man bled to death.

A CASE OF OLD ECHINOCOCCUS OF THE LIVER SIMULATING GALL-STONES, WITH X-RAY FINDINGS AND OPERATION.

BY DR. JAMES E. TALLEY AND DR. JOHN H. JOFSON.

DR. TALLEY: I have but a few things to say concerning the case. The patient was a woman between 55 and 60 years of age whom I saw first in 1903. She had had nervous prostration and still had attacks of acute nervousness, sometimes becoming unconscious, but without any of the ordinary signs of epilepsy. We had come to the conclusion that these spells were hysterical. I saw her off and on for minor things at intervals for the next two years. She had a good deal of digestive disturbance. I am free to say that if the technic of x-ray examination of gall-stones had been perfected in 1903 as now, she probably would have been skiaagrammed long ago, for the patient was of the type to suggest the possibility of cholelithiasis. Last spring she saw me again, when she was again suffering from digestive disturbance. She vomited after meals, and was progressively losing weight. Both an Ewald and a Riegel meal showed a low total acidity and no free hydrochloric. She evidently was a case of achylia gastrica, as no new growth was found then or since. She was to return in the autumn, but did not. Meantime she had had one of her spells. Dr. Mulford had advised having a skiaograph made to see whether she had gall-stones and apparently she had. This photographic plate shows a definite picture like gall-stones. She was

admitted to the hospital for operation. Dr. Jofson will describe the findings. Since leaving the hospital she has been in her usual health.

DR. JOFSON: The x-ray examination seemed to show so positively the presence of gall-stones that we decided without hesitation upon operation. Her symptoms among other things suggested cholecystitis, which she had; but she had also another condition. Operation was done on Nov. 9, 1914. An upper abdominal incision showed marked distention of the gall-bladder surrounded by adhesions, but no stones. The gall bladder was palpated, but no calculi could be found. The routine examination of the stomach and kidneys was made but was negative. On the right lobe of the liver, on the dorsal aspect, there was a yellow area, underlying which was a soft tumor. (Its relative position is shown on the board.) This was apparently the cause of the shadow on the plate. The aspirating needle revealed nothing. Incision revealed a cyst the size of a hickory nut, filled with yellow caseous material, which I removed with a curette. I closed the incision with a couple of sutures and the patient made a normal convalescence. Cholecystostomy and appendectomy were performed. A diagnosis was made of echinococcus cyst. This was confirmed by the finding of the hooklets by Dr. Pfeiffer. I made this diagnosis because I had seen a similar case under Dr. Musser's care posted in the Presbyterian Hospital, in which Dr. Cattell had found the hooklets characteristic of echinococcus cyst. The condition is exceedingly rare in the United States. In this case the apparently positive finding of gallstones by the x-ray was misleading. The liver is the common seat of echinococcus cyst, 60% being found in this organ.

A REPORT OF TWO CASES OF NEW GROWTH OF THE THYMUS GLAND.

DR. E. J. G. BEARDSLEY: The first case was that of a girl of seven years, previously considered particularly healthy. In October, 1913, there was noted swelling of the face, neck and head, the tissues appearing edematous, but without pitting on pressure. Slight enlargement of the thyroid and abnormal pulsation of the vessels; slight exophthalmos, and the lids lagged somewhat on downward motion. The heart was displaced downward and to the left and its action was rapid and weak. Physical signs revealed a large mass in the anterior mediastinum. The child's only complaint was a distressing cough. Edema of the chest wall soon became evident and there was general anasarca. A radiographic plate revealed an extensive shadow of a new growth occupying the site of the thymus gland and encroaching upon either lung. Roentgen rays administered in a small town with limited facilities, gave practically no improvement. After a few weeks of treatment the child developed symptoms of nephritis, all the other symptoms became aggravated and the child died in a uremic convulsion, eight and a half months after observation of the first symptoms. Autopsy was denied.

The second patient was a boy of five years of age, previously healthy. In July, 1914, slight puffiness of the eyelids and face was noted. There was slight enlargement of the cervical glands, but no marked evidence of intrathoracic pressure, and the chest was not examined by the family physician. The mother states that the disease began suddenly on Aug. 2, 1914, with marked swelling of the tissues of

the neck. The ears and lips were cyanosed at this time; breathing hurried and labored. There was neither headache, other pain, nausea nor vomiting. Upon swallowing solid food there was a sensation of strangling. Careful physical examination revealed an extensive mass in the anterior mediastinum, and this was confirmed by the radiograph. Under Roentgen ray treatment the improvement of symptoms and the disappearance of physical signs were almost magical. After the first two treatments the child's condition was much improved, and the radiograph showed the disappearance of the greater part of the shadow noted on the first plate. The continued improvement allowed the child to be about the house, but signs of sarcomatosis developed, and the child died about four months after the symptoms were first noted. The second case illustrates the marked relief possible to obtain; while the failure of the Roentgen ray treatment in the first case can be ascribed to the weakness of the x-ray treatment rather than to the treatment itself.

DISCUSSION.

DR. JOSEPH SAILER: In accord with Dr. Beardley's statement, these tumors are perhaps not so uncommon as supposed. I have seen only two such cases. They were as carefully studied as could be, but in neither case could we obtain an autopsy, and, therefore, the report must of necessity be incomplete. The first case was a woman aged 32 years, sent by Dr. Brown of Quakertown. She had borne five children and had always been a hard-working woman. She was admitted to my wards at the Presbyterian Hospital, complaining particularly of dyspnea. Dr. Brown had recognized a large tumor in the superior mediastinum. It was shown by the x-ray as a large, somewhat irregular mass. It was supposed to be an enlarged thymus, and at my request Dr. Jopson removed part of the gland. We were unable to decide from the pathological report whether or not the growth was malignant. Dr. Jopson decided that operation would be futile. Dr. Newcomer kindly consented to use radium, which was done for a considerable time. I could not determine that there was any physical change in the tumor. Subjectively the improvement was very remarkable. The woman returned to her home against my advice, and in a few weeks the dyspnea returned and she was worse than when she had come to Philadelphia. I advised that she be sent down and suggested the advisability of attempting a section of the sternum for the purpose of relieving pressure upon the trachea, but I have heard nothing further. The second case was a man of twenty-three, admitted to the ward suffering from general hemorrhage. There was bleeding from the gums, nose, gastro-intestinal tract and the urinary tract. A large mass behind the sternum could be palpated, but produced very little discomfort. He had practically no dyspnea and no dysphagia, no sign of compression of the veins or nerves. The various forms of treatment for acute leukemia were given with the usual result; the patient improved and then grew worse and died, not so much the result of pressure upon the trachea as of the gradual progress of the disease and extreme anemia. In spite of our pleading with the family, autopsy was refused. Whether in the future surgery will be devised, making possible the removal of a tumor beneath the superior portion of the mediastinum we do not know. Possibly with the improvement in pul-

monary surgery an operation can be done in cases such as the first with prolongation of the life of the patient. Examination of adjacent lymphatic glands revealed no involvement, and the symptoms were almost exclusively those of pressure.

DR. ROBERT N. WILLSON: It may be of interest to note that in a number of articles that have filtered through in recent German literature reference is made to the coincidence of thymus and thyroid enlargement. An abstract appearing in last week's *Journal of the American Medical Association* brought out two points of value to the internist: (1) The very frequent association of gastro-intestinal derangements with these lesions, indicating a possible origin in gastro-intestinal toxemia (an improper term, but describing the thought); and (2) the control of a considerable number of these cases by large doses of atropin, in the entire absence of surgery. The drug was administered on the basis that it would exert an influence upon the vagotomy which is present in so many of these cases.

FACTORS CONTRIBUTING TO THE DIMINISHED VOCAL RESONANCE OF PLEURAL EFFUSION.

DR. C. M. MONTGOMERY: The mechanism of diminished vocal resonance in pleural effusion, though attributable to simple factors, has apparently never been satisfactorily explained. The factors operative in diminishing the vocal resonance are reflection and diffusion, the former occurring at the junction of the air-bearing collapsed lung with the fluid, the latter between the surface of the lung in contact with the fluid and the external chest surface. The sounds are not diminished as a result of poor conduction, because both fluid and tissue conduct sounds well in the absence of diffusion. There is little sound loss at the fluid-chest-wall junction because the fluid and tissue do not differ greatly in density, or, presumably, in elasticity. The louder vocal resonance over the normal side as contrasted with the side containing fluid, is due to the smaller amount of diffusion on the normal side.

STUDIES IN HYPERSECRETION.

DR. MARTIN E. REHFUSS: In a study of over 100 normal students the average quantity of the residuum of the fasting stomach was 52.14 c.c., a figure considerably in advance of that usually recognized and due to improvement in technic. In studies on normal individuals we found that the response to an Ewald was one of three types, depending on the character, rapidity, and reaction to the stimulus, namely: hypo-, iso-, and hyper-secretory. In 38% of all responses in normal individuals, figures of over 70 total acidity were obtained in some part of the secretory curve. In the hyper-secretory type, there is found normally a definite tendency toward a continued secretion or hyper-secretion, which varies all the way from slight grades to a pronounced secretion for several hours or more. It must, therefore, be recognized that in a certain proportion of individuals to all intents normal, there is a definite hypersecretion merging in pathological cases to a "pronounced hypersecretion."

A point apparently neglected is the "velocity" of the formation of the secretion. There is a pronounced outpouring of the secretion even when the stomach is completely emptied. Results are detailed of the introduction of 0.5% HCl in sufficient quantities (100 c.c.) to stimulate artificially hyper-

secretion in normal individuals. The acidity of the gastric contents is always definitely and persistently lowered and may be followed by secondary stimulation. Whether this is due to the outpouring of a thinning fluid or "Verdünnungssäft" of the Germans or to dilution of fluid of relatively low acidity cannot be stated. It is likewise pointed out that neither atropine, silver, high or low protein diets, salt-free diets, act specifically in every case. But in certain selected cases one or the other occasionally acts in a remarkable manner suggesting possibly several different mechanisms for the production of the condition.

Hypersecretion occurred even of very low acidity in one instance of total acidity 7 and no free acid, of which some 200 c.c. were collected after the meal had completely left the stomach. The dissociation of hyperacidity and hypersecretion is pointed out. It is to be noted that in a large proportion of normal individuals there is a definite hypersecretory tendency and often a "continued" secretion which through the agency of some pathological factor can be markedly aggravated or converted into the most pronounced type of this condition.

DR. J. H. AUSTIN AND DR. O. H. P. PEPPER presented a paper on

BLOOD AND URINARY NITROGEN CURVES AFTER FEEDING.

DR. N. GINSBURG read a paper on

SOME OF THE FACTORS UNDERLYING THE DEVELOPMENT OF GRAVES' DISEASE WITH REMARKS ON VASCULAR OCCLUSIONS OF THE THYROID VESSELS.

Book Reviews.

The Practical Medicine Series. Vol. II. General Surgery. Edited by JOHN B. MURPHY, A.M., M.D., LL.D., F.R.C.S., F.A.C.S. Chicago: The Year Book Publishers. 1915.

This second volume in the Practical Medicine Series for 1915, represents the year's progress for 1914 in general surgery, as summarized from the literature under the editorship of Dr. Murphy. Particular attention is devoted to anesthesia and operative technic. Under the heading of transfusion, the methods of McGrath, Kahn, Davin and Curtis, and Corbett are described in detail. The book, which is admirably illustrated with a colored frontispiece, 49 full page plates and 180 text figures, forms a valuable compendium of recent surgical advance.

Outlines of Internal Medicine. By CLIFFORD BAILEY FARR, A.M., M.D. Philadelphia and New York: Lea and Febiger, 1915.

This volume is intended as a basis for a sys-

matic training school course for nurses in internal medicine, and in addition as a work of reference for graduate nurses. In the discussion of diseases, symptomatology, prophylaxis and treatment are emphasized rather than diagnosis,—in short the diseases are described from the natural history point of view. The book is divided into ten parts, dealing respectively with the diseases of the nervous system, of the blood and glands, of the circulatory system, of the respiratory tract, of the digestive tract and peritoneum, of metabolism, of the genito-urinary tract, of the muscles, bones and joints, with diseases due to heat and poisons, and with the infectious and parasitic diseases. The work is well illustrated with seventy-one engravings and five plates, one of the latter being colored. It should prove a serviceable text-book for the instruction of nurses and for their subsequent use while in practice.

Principles of Bacteriology. By A. C. ABBOTT, M.D., Professor of Hygiene and Bacteriology, and Director of the Laboratory of Hygiene, University of Pennsylvania.

This edition is an improvement upon previous editions, although the extreme elementary character of the book is preserved. The added matter is largely upon immunity. In other respects the book cannot be said to be up to date. For instance, nothing is said about the complement fixation test for glanders, the cultivation of spirochetes and the cultivation of the virus of poliomyelitis. The only mention of the Spirocheta pallida is in a brief paragraph on the staining by Stern's method, one of the least used and least efficient methods. There are numerous other deficiencies in the book. It is of high school rather than of medical school calibre.

A Reference Handbook of Medical Sciences by Various Writers. Third edition, completely revised and rewritten. Edited by THOMAS LATHROP STEDMAN, A.M., M.D., Vol. V. New York: William Wood and Company. 1915.

This fifth volume continues the third edition of this standard medical encyclopedia, embracing the entire range of scientific and practical medicine and allied sciences. The previous edition was edited by Dr. Albert H. Buck. The present edition, by his able successor, continues the merits of the original. It is primarily the work of a large number of contributors, each an expert in a special field. The book is copiously illustrated by numerous chromo-lithographs and by 733 half-tone and wood engravings. This volume extends alphabetically from head wounds to life insurance, and carries the total number of illustrations in this edition thus far to 3732.

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IMMIGRATION AND RACIAL PREDISPOSITION TO DISEASE.

THE effect of environment and climate on racial character, predispositions and immunities has always been recognized, though the reasons therefor have not been clear. With the destruction of the better elements in a race, susceptibility will be increased in the remainder and immunities decreased, commensurate with the emphasis of recessive or undesirable characteristics. In certain of the races and peoples these predispositions and immunities are well marked: The Jews, for instance, have a relative immunity to tuberculosis gained, probably, from long contact with conditions predisposing to it, such as the congestion of the pale, wherein there has been a survival of the fittest, those with some resistant quality—perhaps some antibody. To offset this advantage they are unusually underdeveloped; they have ptosis and flatfoot, due to a giving way of the musculature at

points of pressure. They are prone to congenital physical defects, and have highly sensitive nervous systems. They are the chief sufferers from diabetes. Wilson (*Medical Record*, Oct. 2, 1912) showed that there has been a constant and commensurate rise in the diabetes incidence in New York City, keeping pace with the increase of the Jewish population therein—a striking example of the effect of alien accession on local morbidity. The diabetes in them may be the results of constant intermarriage among themselves—a racial consanguinity—which has a tendency, even in animals, to produce a general constitutional instability. This same race, on the other hand, possesses an indisposition to alcoholic intemperance. On the other hand, likewise, a mixture of this race with the physically dominant races here produces a fine type and tends to eliminate their recessive characteristics (Friedman, *J. A. M. A.*, March 9, 1912.)

The Greeks are subject to various forms of infantilism, especially arrested sexual development. They are particularly prone to spinal meningitis. The Armenians and Syrians are particularly prone to trachoma, and very susceptible to typhus fever, the sporadic types. The Italians age prematurely and have a marked tendency to arterio-sclerosis. Malaria, hookworm and pellagra are common among them. When transplanted from their own soil they are subject to tuberculosis. Rickets and osteomalacia are relatively common among them. The Turks are very susceptible to mumps. The Spanish, Portuguese and Basque sheep-herding people are prone to contract anthrax.

The Swiss tendency to goitre and strumipriva is well known. It is a water-borne condition, not due to animal contamination, but probably to the presence of certain toxins, which, however, are destroyed and the water made fit by boiling to 80° C. In the Germanic and Scandinavian races there is a marked tendency to albinism. The proneness of the Germans to myopia is great, indeed, even to 60% of their population. Leprosy is, for some reason, present in the Scandinavian countries, but is well under control. The Scandinavian races do not survive in warmer climates. Their settlements in the Southern states are now all gone, while those in the Northern states are thriving. The intemperance of the Irish seems due to food poverty and general poverty. For the same reason they have a proneness to tuberculosis, rickety bone deformities and

teeth caries. Yet these recessive qualities soon disappear under favorable environment.

The negro is very prone to tuberculosis, to rickets and hookworm. He enjoys a marked immunity to trachoma but seems to be developing a susceptibility to leprosy. The yellow race is susceptible to trachoma, leprosy and beri-beri. The red race is markedly susceptible to trachoma and tuberculosis, and, indeed, it is from the latter that it is dying out. In general, all aboriginal races are susceptible to the eruptive diseases, especially measles, by which whole communities may be wiped out.

To bear in mind these various susceptibilities and immunities will be of aid to medical officers engaged in the protection of the public health, yet these conditions have a larger significance than merely the detection of individual cases. Active cases are few, but every immigrant carries the potentiality which may nevertheless leave its mark with us who must needs act as a melting pot. It is important to consider the effect of a large migration with its native susceptibilities on the peoples here. Will the dominant qualities of the habitant race overcome the recessive qualities of the migrating races, not merely socially and economically, but racially; that is, physically and mentally? Will the large admixture of these races reduce the native standard and introduce new susceptibilities? It is a real question of preparedness. Are the races here constitutionally prepared to overcome and assimilate a great number of recessives?



SURGICAL DRAINAGE WITH STEEL SPRINGS

So much misery has already been the fruit of the European war and so much more will undoubtedly come to pass before peace is declared, that it would be surprising indeed if there were not a moiety of good discoverable here and there. When the smoke clouds have finally rolled away and the nations settle down to count up the cost, it seems probable that in spite of the heavy death roll of the military surgeons, the medical profession, and especially the surgical branch of it, will have benefited most by the wholesale carnage; for in the arena of war are opportunities which have never before existed in the history of the world for observing surgical injuries and testing out methods of treatment.

Cases which in civil practice are considered

rare, the Red Cross surgeon sees every day and he is able to reckon up his operations by hundreds instead of one or two now and then. Not always does he find himself adequately provided with the tools of his profession either, and often amputations must be done, abscesses opened and wounds dressed in a hurry and under fire, so to speak. Small wonder that the medical mind, stimulated by the constantly recurring emergencies of war and impatient with methods which formerly seemed good enough, is constantly devising new methods of treatment which, if they are successful on the battlefield and in the field hospital, will be the commonplaces of the surgical education of tomorrow.

One of the most recent inventions, if we may term it such, is a new method for draining wounds, originated by a German surgeon, Dr. Tiegel. He had become dissatisfied with present methods of draining, especially with the familiar disadvantages of gauze drains; that is, that after being in the wound a short time they dam up discharges and thus may form pockets of pus, and that when these drains have been saturated with some antiseptic solution they keep this germicide too long in contact with the tissues, tending to devitalize them. Dr. Tiegel's method is the use of a small, rather weak steel spring placed between the edges of the wound so as to hold them slightly apart. At each end of the spring is a small, oblong plate of metal which prevents laceration of the tissues. The wound is thus held open and if possible the patient is placed in such a position that gravity assists in drainage. After twenty-four hours the spring is removed. The originator of this method has found that there is no pain while the spring is in place although its removal may be attended by some discomfort. This sort of drain does not interfere with the natural tendency of the cavity to collapse as does a gauze drain, and so obviates what sometimes happens with the latter kind of drain, *i.e.* the establishment of a cavity with definite walls which has to be filled up with granulation tissue.



VACCINATION OF THE WOUNDED.

HOWEVER much we deplore the suffering attendant upon war, we of the medical profession must keep ever before us the prospect of being called to help our own country should it be forced into conflict. It behooves us, therefore, to benefit by the experiences of our European col-

leagues who are every day learning fresh facts about the treatment of wounds. This war has presented problems which military surgeons have never before had to solve or at least not in such quantity, the poisoning of troops by noxious gases, hysteria infecting whole groups of soldiers, injuries due to the wind of explosives.

As might have been expected, serum therapy, that youngest offspring of clinical medicine, is having a wholesale chance to demonstrate its efficiency. Whole armies are vaccinated against typhoid and smallpox with a consequent complete protection against these scourges. We may watch with the most interest, however, the employment of vaccines in wounds, for their efficacy here is yet a mooted question, and certainly a war of such dimensions as the present one will give us a sufficient number of cases from which to generalize.

An English physician, Dr. Tidy, has given us¹ a preliminary report on the use of vaccines in wounds. He has not found that any miraculous results follow their use, but is inclined to believe that they have on the whole been of some use. It has been his custom to wait several weeks before using vaccines in order to give natural healing processes a chance. Then he begins with small doses of vaccine and gradually increases these. Autogenous vaccines are used if procurable, otherwise mixed vaccines approximating as closely as possible the organisms responsible for the infection in question.

Dr. Tidy states that the temperature is the most reliable guide in the use of vaccines. There should be no elevation of temperature of over .5° following an injection. The best result is a steady fall in the temperature curve. Sometimes the patient complains of various constitutional symptoms such as headache, nausea and malaise and there may be a temporary aggravation of the discharge, but according to Dr. Tidy, these symptoms may be ignored if the temperature continues to drop steadily. He does not approve of giving vaccines at all in mild cases and says that they should never be given within thirty-six hours of an operation on an infected case.

¹ The Treatment of the Wounded by Vaccines. By H. L. Tidy, M.D., *Lancet*, August 14, 1915.

are particularly well illustrated by Dr. Mixter's article and by the communications which we are able to present in other columns of this week's issue of the JOURNAL, from our special correspondents in three different fields of action. Dr. Mixter's experiences in France may be regarded as representative of the best surgical opportunity to be obtained by American surgeons serving in that country during the present war; and his account of them, admirably illustrated by original photographs, presents most vividly the conditions prevailing at a hospital of the type of the Chateau Annel and at Juilly. The first of our correspondents presents, in his familiar and attractive style, the medical and general situation near the Italian frontier, among the valleys of Savoy. The second, who has been serving with the American Red Cross mission at Budapest, presents other aspects of war conditions in Italy and Austria than those with which readers of the JOURNAL have already been informed by previous correspondents. The third, an editor of the JOURNAL, discusses aspects of his experience on his journey through France towards the hospital where he is at present in service. In next week's issue of the JOURNAL we shall be able to publish a further communication from Dr. Smith describing his work at this hospital. The JOURNAL values most highly its opportunity to present to the medical profession in America such communications from reliable members of that profession now sharing in the momentous experiences of the European war, and desires herewith, in its own behalf and in that of its readers, to extend grateful acknowledgment to its past and present contributors and correspondents and to those who, in the future, will continue to supply these first hand accounts of events whose ultimate importance is as great as their present interest.

MEDICAL NOTES.

NEW YORK WEEKLY MORTALITY REPORT.—According to figures supplied by the Department of Health there were during the week just ended twenty-four more deaths than during the corresponding week of last year. The exact number of persons that died during the past week was 1361, with a rate of 1223, as compared with 1286 and the rate of 12.01 for the week ending August 29, 1914.

The important feature in the report for the past week is the increased mortality from ty-

MEDICAL WAR ARTICLES AND CORRESPONDENCE.

THE importance and interest of the European War, especially in its relation to medical affairs,

phoid fever. Of the 21 deaths from this disease last week, 12 occurred in the Borough of Brooklyn and 41 new cases reported in that Borough as against 29 in the remaining four boroughs. The heaviest mortality occurred in the 8th Ward of Brooklyn.

Of the contagious diseases whooping cough was the only one that showed an increase. The deaths reported from diarrhoeal diseases under 5, were two more than during the corresponding week of last year. Considering the increase in population this amounts to a material reduction in the rate.

The death rate for the first thirty-five weeks of 1915 is 13.64 as compared with 14.10 for the corresponding period of 1914.

ROCKY MOUNTAIN SPOTTED FEVER.—Since January 1st, 1915 there have been reported by the United States Public Health Service a total of 562 cases of Rocky Mountain spotted fever with 36 deaths. Idaho had the largest number of cases, 360 in all. The occurrence of the disease in other states is as follows: Wyoming, 59 cases; Oregon, 46 cases; Montana, 34 cases; Utah, 31 cases; Colorado, 14 cases; Nevada, 8 cases; Washington, 6 cases; California and South Dakota each two cases. Montana with 34 cases reported that 22 occurred in territory previously uninfected, which represents a spread of the disease in the southeastern part of the state. Two cases occurred in South Dakota, the first ever recorded from that state. They probably represent the same extension of the disease in a northeasterly direction from Wyoming from the southeastern part of Montana. Three of the cases reported from Oregon represent an extension to the northwest of that state.

PROGRESS OF THE IMPERIAL CANCER RESEARCH FUND.—The research work of the Imperial Cancer Research Fund has, as naturally might be expected, been considerably affected by war conditions. In view of the demand by the War Office for highly trained investigators, Dr. Russell, Dr. Compton, Dr. Bullock and Dr. Singer have entered the service. Fortunately, on the outbreak of the war, several Japanese doctors who had been conducting researches in Germany applied for permission to work in the laboratories. Two of these doctors, Dr. Tsurumi and Dr. Takahashi, received appointments and have been carrying on valuable researches and assisting the Director in routine work. Dr. Kenneth Taylor, of Minnesota, joined the laboratories as a voluntary worker, but was soon called to join the American Ambulance at Paris. In February, Dr. F. C. Wood, Director of the George Crocker Special Research Fund, New York, offered to assist the Laboratories in the event of the staff being called for service, by taking over for the time being the material and if necessary, the laboratory servants with full salaries. This offer was cordially acknowledged

with the information that it was hoped the staff would be able to keep the routine work of the Laboratories going without interruption.

FUMIGATION AS A METHOD OF DISINFECTION.—The American Public Health Association met in Rochester, N.Y., for its forty-third annual meeting on September 6. The fifteenth annual conference of Sanitary Officers of New York State and the annual meeting of the New York Sanitary Officers Association were held simultaneously. One of the subjects under discussion was the question of fumigation of houses after contagious diseases as a means of disinfection. The JOURNAL noted in a recent issue the decision of the Boston Board of Health to discontinue the practice of fumigation as useless, inefficient as a method of killing germs and merely resulting in a waste of public funds. The practice has also been discontinued in Providence, R. I., and the attitude of the American Public Health Association towards its general condemnation will, no doubt, result in its abandonment by most cities and towns. If, instead of relying on fumigation, householders will resort to fresh air and sunlight and soap and water cleaning to destroy lurking disease germs and will guard more carefully against infection by personal contact, probably fewer cases of spreading infection will result than would be the case if dependence were placed on fumigation as ordinarily performed.

PREVALENCE OF MALARIA, MENINGITIS, POLIOMYELITIS, SMALLPOX AND TYPHOID.—In the weekly report of the United States Public Health Service for August 27, 1915, it is noted that during the month of July, 1915, there were in Massachusetts twenty-seven cases of malaria, twelve of cerebro-spinal meningitis, eight of poliomyelitis, two of smallpox and 170 of typhoid fever. During the same period there were seventy-three cases of malaria in New Jersey; and in Ohio eight cases of meningitis, twenty-four of poliomyelitis, 129 of smallpox and 292 of typhoid. There were 217 cases of typhoid in South Carolina, 128 in New Jersey, ninety-five in Michigan, sixty-nine in Washington, forty-three in Minnesota and thirty-six in Louisiana.

INCREASE IN COST OF ANTIPIRINE AND OTHER DRUGS.—In previous issues of the JOURNAL we have noted from time to time the progressive advance in the cost of various drugs on account of the interference with their supply by the war. One of the most rapid increases has taken place in the price of antipyrine, which on June 3 sold at \$6.50 a pound. On July 21 this price was raised to \$13.00 a pound and on August 20 to \$20.00.

A part of the increase in the cost of drugs since the outbreak of the European war has been genuinely due to interference with the sup-

ply; a part also has been due to speculation, which reached its climax in the latter part of August, 1914. The quotations of that date were generally higher than at present, with the exception of certain important products. On May 1, 1915, however, there began a second rise in prices which has continued almost steadily to the present date. On August 30, 1915, the prices quoted per pound for certain of the important drugs were as follows: opium, \$7.50; corrosive sublimate, \$1.45; thymol, \$11.00; balsam of Peru, \$3.75; sandal wood oil, \$6.00; belladonna root, \$1.75, and ipecac, \$2.50. The corresponding prices on July 1, 1914, were: opium, \$6.85; corrosive sublimate, \$.55; thymol, \$2.15; balsam of Peru, \$1.60; sandal wood oil, \$5.10; belladonna, \$.11, and ipecac, \$1.50. On July 1, 1914, cod liver oil sold for \$19.00 a barrel. It now costs \$65.00 a barrel.

EUROPEAN WAR NOTES.

HEALTH OF GERMAN SOLDIERS.—Report from Berlin by way of London on September 2 states that the health of German troops on the various battlefronts is excellent. Dr. Otto von Schjerning, surgeon general of the German army, in a recent report stated that cases of typhus fever have occurred but rarely, though prior to the war the disease was endemic in some of the occupied districts.

The typhus was successfully combated by providing the soldiers with sterilized water, more than 300 portable apparatuses for boiling, cooling and filtering drinking water being employed. Each of these was capable of preparing 200 gallons hourly. The military physicians systematically isolated all cases, not only among the German troops, but also among the civil population of the occupied districts. Anti-typhus vaccination of the soldiers was also generally performed since the outbreak of the war, which was impossible during the mobilization period.

Along the Russian front Asiatic cholera has also constituted an important menace. Many cases were found in the area recently occupied beyond the River Vistula, but nowhere has it become epidemic. Between July 18 and 31 there were 215 cases of this disease among Russian prisoners in Germany and sixteen cases among German soldiers. This disease, also has been successfully controlled by inoculation and by the use of sterilized drinking water. In Austria, conditions are not so favorable. Report from Rome by way of Paris on September 7 states that during the last three weeks of July there were in Austria 1885 cases of typhus fever and 7427 cases of Asiatic cholera with 3395 deaths.

CASUALTIES AMONG PHYSICIANS IN SERBIA.—In a recent issue of the *Journal of the American Medical Association*, are presented statistics showing that of 387 native Serbian physicians

alive at the beginning of the war, 93 have died, 82 of them from typhus fever. There have been 35 deaths among foreign physicians in Serbia during the war of whom four were American, three British, and two Belgian.

WAR RELIEF FUNDS.—On September 10 the totals of the principal New England Relief Funds for the European War reached the following amounts:

Belgian Fund	\$271,461.37
French Fund	14,093
Italian Fund	5,676.20

A CANADIAN SURGEON IN FRANCE.—The following extracts from the letter of a Canadian surgeon of the Royal Scots to his family, recently published in the Quebec *Chronicle*, illustrate some aspects of medical service at the front in France:

"I was glad to get the letters from home, but was sorry to note you were feeling so anxious. You can rest assured that living here is much safer and much less exciting than the concentration of our moments into one letter would indicate. Don't worry about me. I select a nice secluded spot, and get it well fortified."

"We had a little bit of excitement last night when we exploded a mine and occupied the crater. We lay in our redoubt and listened to the merry shriek of the bullets going well over our heads. None of our men were wounded, but I think we got a number of Germans. For five weeks we hadn't one man killed in our battalion."

"We have had hot baths in good (enamelled) bath-tubs every time we have been out of the trenches, hot water turned on. We have better meals in billets than even in the hospital. I have played on three cricket matches and took part in sports Dominion Day."

"I used most of the money sent me to provide the men in hospital with newspapers and for prizes at the sports, as I thought this would be the most beneficial use to put it to at the time. These kinds of things are very welcome, as they are a change and any way, nothing is too good that will give pleasure and relaxation to our men who are doing the fighting so effectively."

"My dressing station is in a combination of a well-built log cabin and a dugout. Quite a large hill protects us from the Germans. At first the sound of the guns, both ours and theirs is rather trying, but it took me only a couple of nights to get accustomed to them, and now I can sleep through almost anything."

"I see the church has put in a protest against sending cigarettes to the soldiers. I admire their spirit, but not their judgment. With very few exceptions, the clergymen in our division smoke out here, and do not think it is because they have fallen from their ideals, but because they realize the value of what proves to be, for them, a sooth ing, refreshing pleasure, whose harm under these circumstances of outdoor life and exercise is

more than neutralized by the general benefit in States under the Treaty of Geneva, to fulfil all requirements imposed by Congress, to secure efficiency under centralized authority and trained organization in close affiliation with the Army and Navy Medical service, and finally to safeguard the American public against fraud and abuse.

"We had a beautiful time in our billets. I was billeted in the Curé's house. He was a genial soul, and did not seem to be at all disturbed by the fact that his house has been occupied for the past eight months by soldiers, and that the Germans were within a very short distance of his beloved church. He had six dogs, a fine garden, and a good library, and was happy in these."

"My stretcher bearers are splendid, and are the heroes *par excellence* of the game, I believe."

"The heel protectors and socks have been most useful. The men come in with sore heels, which do not get a chance to get quite well in billets, but with the protection of your heel leathers they get a better chance, and I could use more of them."

"The men are in very fair condition, and although most of the glamour and glory of war has been shelled out of their minds, they are determined to see this thing through."

"It is fine working with them, and being able to feel that you can do something for the men who are really doing the hard and dangerous end of the business."

STATUS OF AMERICAN RED CROSS RELIEF.—The American Red Cross has recently received various inquiries indicating a lack of public understanding of the terms under which its relief work is performed in the time of war. The following statement has been issued in the public press defining these terms and the status of the Red Cross in relation to the government of belligerent countries:

"There is an international treaty, a very explicit law, a presidential proclamation, and duly promulgated orders of the War and Navy Departments relating to the furnishing of volunteer aid to the sick and wounded of armies in time of war. It apparently is not fully realized that war relief work must be accomplished under definite regulations; that a precise plan of action was long ago adopted, and that a nation-wide, officially recognized and chartered relief organization, with departments designed to meet every phase of war relief work, exists.

"The conduct of war is regulated by certain well-established and recognized rules that are usually designated as "the laws of war" which comprise the rules, both written and unwritten, or carrying on war, both on land and at sea, should there ever come a time when the United States would be involved in war it would be imperative to enforce with the utmost stringency the law, and the executive and departmental orders governing the use of the Red Cross emblem and the functions of the Government's charter supervision and systematized volunteer relief association.

"All volunteer aid must come under the direction of the American Red Cross in such a contingency to carry out the obligation of the United

"It should be understood that the surgeons general of the United States Army and Navy are appointed by the President of the United States to represent these departments in relief work. They are members of the American Red Cross executive committee, and chairman and vice chairman, respectively, of the War Relief Board.

"All accounts of the American Red Cross are required by law to be audited by the War Department and an annual report, also required by law, detailing the activities of the organization, is made to Congress by the chairman of the central committee. It may be seen from this that the American Red Cross machinery would be set in motion at once and that its activities would be definitely coöordinated with the legislative and executive work of the Government in time of war. Merely as an example of its preparedness in one branch of its organization, there are 6000 enrolled American Red Cross graduate trained nurses who have been accepted by the War Department as the Army Nursing Reserve Corps.

"The War Department and the Navy Department long ago formulated regulations governing completely the duties and functions of the American National Red Cross with reference to rendering aid to the land and naval forces in time of actual or threatened war. The sign of the Red Cross is protected by law and the fraudulent use thereof is punishable by fine or imprisonment or both.

"President Taft in 1911, by proclamation to the Army, stated briefly the relations that must exist between the military departments of the Government and volunteer relief in the event of war. General Orders, No. 170, War Department, 1911, publishes the proclamation, stating in effect that the American National Red Cross is the only volunteer society authorized by this Government to render aid to its land and naval forces in time of war; and that any other society desiring to render similar assistance can do so only through the American National Red Cross; that to comply with the requirements of Article 10 of the International Red Cross Convention of 1906 (revision of the Treaty of Geneva), that part of the American National Red Cross rendering aid to the land and naval forces will continue a part of the sanitary service thereof."

BOSTON AND NEW ENGLAND.

TYPHOID AT GRAFTON STATE HOSPITAL.—In the issue of the JOURNAL for August 26, 1915, we noted the recent occurrence of an outbreak of

typhoid fever at the Grafton State Hospital. In the monthly bulletin (No. 12) of the Massachusetts State Board of Insanity for August, 1915, the superintendent of the Hospital reports that the epidemic proved to be the result of two carriers, both patients, one of whom had the disease ten years before and the other five years before. All the twenty-six cases which occurred were among women patients. Prophylactic anti-typhoid inoculation was administered to 1480 patients and 369 employees. There were two fatalities among the typhoid cases.

AWARD OF AMERICAN MEDICINE GOLD MEDAL.—It is announced that the award of the American Medicine Gold Medal for the year 1915 has been conferred upon Dr. Rupert Blue, Surgeon General, U. S. Public Health Service, as the American physician who, in the judgment of the donors, has performed the most conspicuous and noteworthy service in medicine and surgery during the past year.

BOSTON SCHOOL PHYSICIANS TO BE CONTROLLED BY THE SCHOOL BOARD.—On September first the Boston School Board took formal charge of the examining physicians for the schools, hitherto under the jurisdiction of the Board of Health. Physicians receiving appointments as school physicians must now pass a civil service examination. This examination will take place on September 23.

BOARD OF HEALTH OF THE CITY OF PORTLAND, ME.—The report of the Board of Health of Portland, Me., for the year 1914, records that among contagious diseases, typhoid fever leads in number of cases. There were 217 cases with 20 deaths. Of scarlet fever there were 126 cases with three deaths; diphtheria 105 cases with 11 deaths; eight cases of smallpox and three of infantile paralysis. Of all causes of death, nephritis, with 120 deaths, leads, pneumonia coming second. The total number of deaths was 996 and of births 1,460.

DEPARTMENT OF HEALTH TO BE NOTIFIED OF DIARRHEAL DISEASES.—The following letter has been mailed to every physician in the city of Boston by Dr. Francis X. Mahoney, Commissioner of Health:

"The Health Department wishes to use all the means in its power to reduce the number of cases of dysentery and all deaths from this cause among infants. It is now required by law that all cases of dysentery be reported to the department at once in writing, and this matter is called to your attention, in order that there may be no chance of a misunderstanding. It is not the intention of the department to interfere in any way in the care of these cases by the physicians, or to quarantine them. It is highly important that immediate notification be made of all diarrheal conditions among in-

fants, that the milk supplies and the sanitary conditions of the homes may be investigated.

"Postals for notification of reportable diseases are furnished free."

RESULTS OF MEDICAL INSPECTION IN BOSTON SCHOOLS.—The success of thorough inspection of school children as to eyesight and hearing defects is shown by a comparison of the results of inspection in Boston schools for the years 1907 and 1914. In 1907, of the 83,909 children examined 31.5 per cent. were found to have defective vision, and 8.13 per cent. defective hearing. In 1914 only 12.36 per cent. were defective in vision and 2.7 per cent. in hearing.

ADEQUATE MEDICAL INSPECTION FOR RURAL DISTRICTS.—Dr. Merrill E. Champion, State District Health Officer, in a recent address, called attention to the pressing need of adequate medical inspection for rural schools and the difficulty under present arrangements of such inspection being provided. He urged the appointment of a full-time medical inspector and a trained nurse and that a living wage might be provided, he suggested the banding together of several towns in the support of a physician and a nurse who could by this means afford to devote their whole time to the care of the school children.

Obituary.

CARLOS J. FINLAY, M.D.

DR. CARLOS J. FINLAY, of Havana, Cuba who died on August 21, 1915, in Savannah, Ga., was born at Puerto Principe, Camaguey, Cuba in 1833. After obtaining his early education at the Lycée de Rouen in France, he studied medicine at the Jefferson Medical College in Philadelphia, from which he received the degree of M.D. in 1855. Returning to Cuba, he began the general practice of his profession at Havana and soon became one of the leading physician of that city. As early as 1881 he became a delegate from Cuba to the International Sanitary Conference held at Washington, D.C., in that year.

It was at this time that Dr. Finlay first announced his theory of the transmission of yellow fever through the bite of the mosquito. He had observed a correspondence between the autumnal increase of yellow fever and the abundance of mosquitoes at that period, whereas during the summer, when mosquitoes were few, the disease was not extensively prevalent. He therefore began a series of experiments which ultimately led to the great discovery of the methods of transmission and control of yellow fever.

In Augustin's "History of Yellow Fever" (New Orleans, 1909) Dr. G. Farrar Patto writes as follows of Finlay's early work in th-

important investigation: "We cannot pay too high a tribute to the acumen of Dr. Carlos J. Finlay, who, as far back as 1881, not only advocated with absolute confidence the doctrine that yellow fever is conveyed by the bite of a mosquito, but correctly designated, as was proved some years later by the experiments of the United States Army Commission under Dr. Walter Reed, the particular mosquito, and the only one, so far as known, by which the disease is transmitted to man. Unfortunately, Finlay did not at that time, have the advantage enjoyed by later investigators, of deriving helpful suggestions from the knowledge of the rôle played by the mosquito in malarial fever; but reasoning on the simple doctrine of direct inoculation, he thought that the proboscis of the mosquito biting a patient ill with yellow fever, became contaminated with the virus of the disease, which in turn was directly infused into the blood of other persons subsequently bitten by the same mosquito, thereby conveying the disease to those who were not immune. For reasons now well understood, the experiments made by Finlay to prove his theory were uniformly unsuccesful, but he remained unshaken in his belief that the particular house mosquito formerly called *uler fasciata* and now named *stegomyia calops*, which he observed to be invariably present in connection with yellow fever, was the active agent in its transmission, and, unlike many pioneers who have advocated truth before the world was ready to receive it, he lived to see his faith "jubilantly vindicated." If Finlay could have ascertained what Carter later determined, that a definite period of time must always intervene between infecting and secondary cases, he could hardly have failed to keep some of his infected mosquitoes over that period. It was impossible, however, to make this observation in Havana where the disease was continuous. For twenty years Finlay was regarded as a hopeless visionary until the work of Reed and his associates in 1900 and 1901 demonstrated the accuracy of his hypothesis. Finlay's position prior to their demonstration is, perhaps best stated in his article on "Mosquitoes Considered Transmitters of Yellow Fever and Malaria," the *New York Medical Record* (1899, Vol. 55, 737).

In one of his monographs Dr. H. R. Carter of the United States Public Health Service, refers to Finlay's work on yellow fever as "a very beautiful piece of inductive reasoning." His perience was the unusual one of a scientist, discovering a truth, but unable to demonstrate it, lived to see his belief established by the work of others. As Patton in his article concludes, "It takes away nothing from the perishable fame of Reed and his collaborators to give Finlay due credit for abstractly reasoning out a great truth and for so steadily upholding his belief despite his inability to prove it."

In 1902 Dr. Finlay was appointed chief sani-

tary officer of Cuba and in 1903 he again went to Washington as the Cuban delegate to the International Sanitary Conference in that city. He remained as sanitary officer of Cuba until his retirement in 1908. Since 1909 he had been honorary president of the Junta Nacional de Sanidad Beneficencia.

Dr. Finlay was a member of the Havana Academy of Sciences, the Sociedad de Estudios Clínicos of Havana, the Société Scientifique of Brussels, the Royal Society of Arts of London, the College of Physicians of Philadelphia, and a member of the American Public Health Association. He was also a Fellow of the Society of Tropical Medicine and Hygiene of England, an honorary member of the American Society of tropical Medicine, and the Société de Médecine Tropicale of Paris, and a corresponding member of the Académie de Médecine of France.

Miscellany.

MONTAIGNE ON THE MEDICAL EFFECT OF IMAGINATION.

IN the twentieth chapter of the first book of his essays Montaigne quotes the two following cases illustrating the medical effect of imagination in the relief of bodily afflictions:

"Some man paradyture, by the effects of imagination leaveth the pox or Kings evill heire, whiche his companion carrieth into Spaine againe: loe heire why in such cases men are accustomed to require a prepared minde, wherefore doe Physitians labour and praetise before hand the coneeit and eredence of their patients, with so many false promises of their recoverie and health, unlesse it be that the effect of imagination may supple and prepare the imposture of their decoction? They knew that one of their trades master hath left written, how some men have been found in whom the only sight of a potion hath wrought his due operation: All which humor or caprice is now come into my minde, upon the report whiche an Apothecarie, whilome a servant in my father's house, was wont to tell me, a man by knowledge simple, and by birth a Switzer; a nation little vaine-glorious, and not much given to lying, which was, that for a long time he had knowne a Merchant in Tholouse, sickish and much troubled with the stone, and who often had need of glisters, who according to the fits and occurrences of his evill, caused them diversely to be prescribed by Physitians. Which being brought him, no accustomed forme to them belonging was omitted, and would often taste whether they were too hot, and view them well, and lying along upon his bed, on his bellie, and all complements performed, only injection excepted, which ceremony ended, the Apothecarie gone, and the patient lying in his bed, even

as if he had received a glister indeed, he found and felt the very same effect, which they doe that have effectually taken them. And if the Physician saw that it had not wrought sufficiently, he wold accordingly give him two or three more in the same manner. My witnesses protesteth, that the sick man's wife, to save charges (for he paid for them as if he had received them) having sometimes assaid to make them onely with luke warne water, the effect discovered the craft, and being found not to worke at all, they were forced to returne to the former, and use the Apothecarie."

"A woman supposing to have swallowed a pinne with her bread, cried and vexed her selfe, even as if she had fel on intolerable paine in her throat, where she imagined the same to sticke; but because there appeared neither swelling or alteration a skilfull man deeming it to be but a fantasie conceived, or opinion, apprehended by eating of some gretty peice of bread, which haply might pricke her in the swallow made her to vomit, and unknowne to her, cast a pinne in that which she had vomited. Which the woman perceiving, and imagining she had cast the same, was presently eased of her paine."

Correspondence.

PARIS LETTER.

THE REVERSE OF THE PICTURE.

(From Our Special Correspondent.)

PARIS, August 21, 1915.

Mr. Editor: I have recently spent a couple of weeks up in the high vallies of Savoy, on the Italian frontier, and both on the voyage there and back, and during my stay in that beautiful though little-frequented region, I have been able to observe a side of this war so far entirely unknown to me: how it really affects the French people, and what they think on the subject,—for it is a time-honored saying that Paris is not France, whatever we who live in the capital may believe in that respect. Both going and coming the trains and stations were simply swarming with the military; not only was every seat taken, but even the corridors were packed, while as for the berlams at such centres as Dijon, for instance, it beggars any attempts at description. The French soldier is quite unrecognizable now; this year in the open, combined with a light greyish-blue uniform, and the quiet but manifest confidence in himself that he has regained, have made him into a transformed being. A large portion of these men were going home for the first time since the outbreak of the war, on harvest leave; there was then every justification for noisy conduct, horseplay and perhaps bragging. But we saw practically nothing of the sort. The men were loaded down with rifles, knapsacks, side-bags, wine-flasks, and cartridge-pouches, until we simply didn't know where to put things; but good-humor overcame every obstacle, each one did his best; and we all ate, drank and talked together as though we had pigged-it in the same trench all winter. The usual stand-offishness of the French when travelling has vanished into thin air; people now speak to each other at a glance, before they are really seated. But in spite of all this good feeling, and the natural rejoicing at seeing home

once more, there was no noise; these men realize that this war is a deadly business, that it is still anything but finished; and they are consequently in no mood for merriment.

Besides, this looking death in the face night and day for month after month necessarily changes a man's nature; we remarked over and over again the seriousness of all these men, and the total disappearance of the foolish *blague* that used to be such a trying feature in an ordinary French crowd, where men of 25 would be performing antics that could at best be tolerated in boys of six or eight.

We had quite a number of wounded with us, chiefly men discharged from the ambulances and on their way home to convalescence, many with a limb gone; others on crutches, and all with the thin, white, drawn face that everyone now knows so well, and that tells of months' of suppuration. The behavior of the crowd to these poor fellows was a perpetual delight; to have been wounded in the war makes you *ipso facto* everyone's brother. To the other chaps in blue you are at once *mon frère*, and addressed in the second person; to the ladies, *mon ami*, without further ceremony. A tall, pale artilleryman, with a stiff knee, crutches and two medals, appears at the door. The compartment is crammed, but that makes no difference; everybody instantly hops up and lends a hand, he is hauled in bodily: "*Donnez-moi tes bâquilles*," "*Mettez-roux là, mon ami*"; and one or two sturdy chaps are unhesitatingly hustled out into the corridor already packed to death, while the new arrival is made comfortable, though profuse with apologies. Then we offer cigarettes, our wine-bottles, or fruit, and get his story out of him. The entire scene is simply a revelation, and rather makes one think that human nature may have some excuse for existence after all. When you think of the reception anyone would have got only a year ago, if he had tried to squeeze into a compartment that already had its proper complement!

We finally branched off onto a side line, and then the crush decreased, although the gentlemen in pale blue were still everywhere to the fore; many of the uniforms were sadly faded by hard service; but all had been cleaned of the trench-mud as far as possible so as to present a creditable appearance on arriving home. In our compartment were three men of the Reserve, smoking and passing around the practical French army-flask, the one with the little air-tat that enables you to extract its contents without going through the asphyxiating slober usually associated with drinking from a bottle. The wine in this district is very cheap and only slightly alcoholic, and the soldiers get it at the stations for about cost-price. One of these men offered me his flask, which I courteously declined, not wishing to diminish the supply available until the next halt; but bless you! tha didn't answer, by any means. The excellent chap feelings were badly hurt, and he remarked in dignified remonstrance: "I did not suppose you would refuse a *beurre soldat* when he offered you the wine of his country." So I made amends and harmony was restored.

We were to spend the night at Cluny, which is mentioned in the books as having been the intellectual capital of Europe in the 12th century, the great Benedictine abbey that at one time had some 2000 religious houses dependent on it! This we felt we ought to see. But it turned out rather a disappointment since here, as pretty much all over France, there again appears the utter lack of sentiment, not to say evident hostility that the French have shown to their great ecclesiastical monuments of the past. Not only have they either pulled them to pieces, or let them fall in ruins, but of what remains they have made such usage as deliberately to throw discredit on them. The Cluny, and Bee, both mentioned in the Anglo-Saxon *Chronicle*, the latter the Abbey that produced the first two archbishops of Canterbury, Lanfranc and Anselm, are now stud-farms; Fontevrault, Clairvaux

and Cîteaux, penitentiaries,—and so on. Anyone who has travelled in England, and recalls Tintern, Furness, or Fountains Abbey, than which there is certainly nothing more completely beautiful in Europe, whatever the Orient may have to show, is simply horrified to see the fate that has befallen the great French abbeys. Cluny is a quiet, picturesque *rille de prairie*, in a smiling, very fertile valley near Mâcon; and its shady streets and arborised walks are the frequentation of countless soldiers convalescing from less important wounds not requiring special attendance or first-class surgical skill. This is now the case all over France.

But the following evening we were away out of the busy world in a tiny hamlet of a remote Savoyard valley at the only inn the place afforded, though it was very comfortable. Here the scene was the same as everywhere in France, everyone's menfolk at the war, and the women, children and elders "carrying on." It is a remarkable sight to see fields, meadows, orchards, vineyards and livestock,—everything cared for just as usual, with all the able-bodies gone! Anyone who is anxious really to concentrate on a worthy topic will find an ample field in the French women of 1914-1915. They all say that the only real pinch will come when the mowing has to be done, as that is heavy work for women; all the remainder they can gladly tackle, and the way the endless vineyards looked all through that invaluable stretch between Dijon and Beaune, in which are produced the finest wines of the earth, was a witness to what women can accomplish when their back is to the wall, and it is a ground-hog ease. It is often said by the knowing that the women are the backbone of France. Personally I am so terribly pleased for the moment with the French soldier, that I find it hard to be fair to anything else; but certainly, what I saw of those women up in Savoy filled me with unbounded admiration. One of the most striking examples I met right in this little hamlet: at the end of five minutes she and I nearly fell on each other's necks! I went into a tiny shop, to get some local picture-cards. The dame at the counter saw I was a stranger, learned I was from Paris, and then, of course at once, "What did I think about the war?" Henceforth that was the inevitable: "*Monsieur habite Paris?* Que dit-on dans le village de cette guerre?" and this is what she told me: Lost her husband some years ago, and remained with one only son, steady and satisfactory in all respects, with whom she carried on this business, and had been doing very well. Then came the war, and off he went to Alsace with the rest of the Chasseurs alpins, who originate in this district, among the mountaineers, guides, chamois-hunters, poachers, etc., fine shots, most of them, and runners on skis. They say that music softens the human heart; but I am afraid that the same cannot be advanced for war. This woman was evidently the best creature in the world, motherly, kind, everything that could be wished; yet this is the style in which she talked. Her worthy offspring had, it seems, right at the beginning of the war, ambushed a motor-car full of German officers on the frontier at a railroad crossing by letting down the bar, and had pumped the car full of lead as the driver necessarily came to halt, sending three of the foes to the next world and bringing in the other two prisoners. "Oui, Monsieur," said the proud mother, with tears of joy in her eyes, "il en a descendu trois à lui tout seul, et les deux autres se sont rendus; ensuite il a été félicité par son capitaine devant toute sa compagnie!" Soon after that he had some fingers shot off, but resumed his place in the ranks as quickly as possible. Finally, however, a big shell lifted him into the air with some tons of earth, and as he came down he ruptured himself, damaging a knee badly at the same time, something with the knee-cap, I gathered. And now the fond mother's main anxiety was to know whether I thought he had been sufficiently knocked to pieces to warrant an honorable discharge and his return to the parental hearth?

Up at the remote village where we finally settled down it was the same thing—all the husbands and brothers at the front, but happily but few men killed so far. The inn was run by an old couple, with the help of a daughter. This daughter's husband disappeared before Arras in October last, and has not been heard of since. All they know is that he has not been reported killed. Now as men are constantly being found after a silence of six, eight or ten months, this good woman still hopes on, although I fear that her chances are slight. She has four little ones, the last born soon after her husband left for the front. In that small group of houses on our side of the rushing mountain torrent there were no less than seventeen small brats with their fathers off at the war, and a mighty lively crowd of huskies they were, I can tell you, when school-hours were over and the band of them issued forth to seek what it could devour!

One of the most interesting types I met up there was a man I took as guide, a sergeant of Chasseurs, home on convalescent leave after an illness. This man was a professional potsher of chamois, quite a superior character, and his tales about stalking Germans in the winter forests of the Vosges were most thrilling. It seems that he is a known shot at home but there was no bragging about his stories; in fact, it was quite apparent that he had horror of killing a fellow-being, and was not very keen to speak about it. Yet by reading between the lines you could see that whenever there had been a particularly tough job on hand in his trench, he had been the marksman told off for it, and that he had generally accomplished what had been expected of him, for he followed up his, "J'en ai descendu quelques-uns," with a significant look that spoke volumes. He had one tale about suddenly and unexpectedly coming across a huge German when out as *éclaircisseur* in the forest, and of jerking the butt of his rifle to his shoulder and instantly firing, that was most palpitating. As he said: "At moments such as that you must not lose time in thinking; if you don't get your man, *he gets you*,—that is all there is to it." The solution he proposed for the war was—at least so far as his corps of Chasseurs alpins was concerned, original, if nothing else. He said: "We are nearly all good shots, and afraid of nothing. If they would let each chasseur free from military service, and authorize him to go home, as soon as he had brought down five Germans, it would not be long before the entire battalion would be back here again among the mountains!" We went up a fine peak together one day, in such perfect weather as I have rarely seen, and had the view of a life-time: the entire chain of the Alps, from Chamonix, all along the Valais giants (with the Overland behind them), Savoy, Cogne, the Dauphiné, clear to Monte Viso without a cloud; it was a marvellous panorama. Now as we sat up there, eating a hasty lunch, thinking of the beastly 300-metre ice slope we had to get down again before the sun grew hot enough to make the laboriously-cut steps unsafe, what do you suppose my guide remarked, with an infinite depth of feeling? Every climber knows the almost uncanny stillness that reigns on the point of a sharp peak, no matter how much wind there has been on the way up; well, here is what he said: "At least you cannot hear the cannon up here!" He was one of the very few guides I have gone with who really loved the mountains. It was fairly pathetic to hear him speak of how in two or three weeks he should again have to tear himself away from all that was dear to him, and return to the trenches; he seemed to have an absolute horror of the sound of cannon, in particular, and was constantly referring to it. He was married, with two small infants, and had just finished a house in which he had proposed to take on summer-boarders, when all his hopes were knocked on the head by the outbreak of war. I thought his passion for hunting would be the end of us, before the day was over, since instead of looking after the rope, and keeping an eye on his charge, he was everlastingly searching around for chamois with

a spy-glass. At our feet, when we were at the top of the mountain, lay spread out the entire district of Cogne, where the king of Italy has an immense preserve of chamois and bouquetins. I thought I was entertaining Jean with an account of this game, of how fearless it is, of how the cliffs over there simply swarm with it, and how a family of bouquetins nearly finished off my party one day by sending down a shower of stones on us; but apparently I had made a *faux-pas* somewhere,—the guide looked neither interested nor pleased! Finally I ascertained that he and some friends on a certain occasion had crossed the frontier stealthily one night to do some judicious weeding out of the King's herds at early dawn, but had been caught by the *gardes-chasse*, heavily fined, and promised a spell of prison for the following offense!

Good old Jean! I don't know when I have warmed up to a public malefactor as I did to him. He was simply a splendid chap! And when this dreadful war is over, and this vast ocean of misery has had time to subside a little, I shall not fail to find out whether or not Jean has come through the conflict all right? If, as I hope, he does, I propose to go down there and stay with him a bit; and when I do, I shall be provided with the wherewithal to give him and his family the time of their lives. It is remarkable to note how all these men who have been through the fiery ordeal, and have experienced the real thing, think alike on the subject and on the future outlook: a quiet fatalism, as to their chance of life; but an absolute certainty as to the ultimate result: "Oui, c'est long; mais on les aura." This is the alpha and omega of their philosophy.

"S."



AN AMERICAN SURGEON IN ITALY AND AUSTRIA-HUNGARY.

(From Our Special Correspondent.)

AMERICAN RED CROSS MISSION,
K. U. K. RESERVE SPITAL NR. 4,

60. MEXIKOI-UT VII., BUDAPEST, July 26, 1915.

Mr. Editor: Doubtless one might find a more propitious time for travel, but the novelty of being on a ship belonging to one of the belligerents, having more "bundles" than would be healthy, even in normal times, adds spice to the adventure that in all probability is never to be duplicated. We had so much cargo that half of the water tanks had to be emptied, so as to keep the water line showing. The weather was very rough, and the wind high, on account of storms that persisted in following us, in spite of full speed and varying the changes of direction. The course was not plotted out for reasons best known to the commander—this added much to the thrill of the trip—but I venture to say it would have been very interesting to note the additional leagues sacrificed for safety. However, by the time we reached the Azores, we were caught between two heavy storms. These prevented us from landing, and a whole twenty-four hours was lost in sailing back and forth along the island, until finally the wind became so high that we were forced to put out to sea. The next noon we were able to get on to the lee side of the island and run into a little cove, and land our passengers by means of small boats, a thing that has not been done for months and months. However, "it's an ill wind"—as the saying goes. The sight of land had a very pleasing effect on those afflicted with "*mal de mer*," and the warm sun and the aroma from the variegated green fields, together with the calm sea, was better than all the "dope" ever written about in the *Pharmacoepias*. From what I could see of those islands, with their little Dutch windmills, I think I should like to spend a few months there. It is interesting to note that, although it rains nearly every day, there are



BUDAPEST: DIE FISCHERRÄSTEI MIT MATHIAS-KIRCHE.

always parts of the islands where one can enjoy fair weather, and as they are a matter of only a few miles in breadth, it is a very easy matter to drive into these places.

Our delay at the Azores made a difference of about thirty-six hours in getting to "Gib," where we found nasty rainy weather, which had been the program for the past ten days or so. Here we were closely examined for contraband goods. The ship anchored long enough only to discharge the Harvard Unit and a few passengers and to replenish our much-needed water supply. Only British subjects were allowed on shore. Therefore, we missed a *gory* (?) bull fight. On leaving "Gib" we ran into balmy weather, and on that evening enjoyed our first Italian sunset. The weather remained warm and clear for the remainder of our trip and the sea calm. Also, there was a remarkable change in every one as soon as we reached the Mediterranean. It seemed as if a great load had been lifted off us—we had a feeling of *safety*. On our way across the Atlantic we had to be very cautious; sail cloth was lashed over the decks and stateroom windows, also over the skylights of the saloons at night, and the life boats were in constant readiness for any emergency that could possibly arise. The whistle blew only at noon, in spite of the frequent fogs; the wireless was not in use except to "switch" the Associated Press news at mid-night, so you see we had one of those experiences that you read about in the "*best-sellers*." All the above changed when we entered the Mediterranean,—we felt *free* once more.

On our way to Naples the monotony was broken by the passing of several French and Italian cruisers, and also many, many trawlers bound for the Dardanelles. The evening before we reached Naples we could smell distinctly the odor from Vesuvius.

The day we entered Naples was a beautiful, balmy spring day, clear as a crystal, which showed off its harbor to the best advantage, but I had either too high an idea of it from reading, or else I am no connoisseur of Nature. I was a trifle disappointed, for I could not but think that the Portland harbor was a much prettier one than that of historic Naples. Of course the old sentinel Vesuvius was grand and austere, with his halo of sulphur di-oxid.

As we neared the dock we were greeted as usual by the classical parasites for which, plus the squalor, Naples is noted. We had great sport watching these little beggars diving for money, and listening to the Neapolitan musicians. Just to show you the feeling of the people at that time, one of the ladies on deck threw a Krone in the water. The little urchin refused to dive for it, and instead showed his disdain for the K. U. K., by putting his thumb to his nose and extending his fingers. Thus you will understand why I issued orders to the party not to speak German while on Italian soil. As the boat was not to sail for over twenty-four hours, we had a chance to see some of Naples. First we hired an auto and went to Pompeii, having lunch at the Hotel de Suisse, which is at the



K. U. K. RESERVE SPITAL NO. 4. A. R. C.

entrance to the reservation. After giving it a thorough inspection we started back. The scenery was beautiful. We were much interested in seeing the spaghetti shops and most of all, to the amusement of our guide, the way they deliver the milk (either cows' or goats'). It is delivered to the door, absolutely fresh and warm, and it is the only way you can be sure that the product comes directly from the producer to the consumer. We had opportunity to see another interesting custom, as you may remember, it was the Wednesday before Easter that we were in Italy, Naples, to be exact, and on this day the farmers bring in lambs and sell them on the streets. These lambs are killed for the Easter Sunday dinner, and it is very interesting to see the children leading a little lamb home.

After we had bought the usual things that every one does in Naples, viz. gloves, we had a real Neapolitan dinner. The next day we took the same guide and visited the important churches, and Museum, getting back to the boat just in time to get on board. Our trip to Genoa was uneventful except for a most glorious moon.

We arrived in Genoa on Good Friday A.M., but owing to delay it was not till after lunch that we could go ashore. Oh! what a difference. Genoa and Genoese stand for the things that Naples does not, viz.: no beggars, clean streets, thrifty business and industry, and education. This birthplace of Columbus prides itself on being like an American city. We visited the principal points of interest here, including the world renowned Campo Santo, the description of which is beyond words.

We were unfortunate enough to stop off at Milan long enough only to lunch and see the wonderful historic cathedral and see a few of the principal streets, as we wished to spend Easter in Venice. Suffice it to say that Milan is a real metropolis and I imagine worthy of quite a protracted visit.

Inasmuch as there were very limited train service and also accommodations,—no sleepers was the main complaint,—we decided, not unwisely, to spend this Easter as a holiday in Venice (the construction of this sentence is very poor) and now that things are as they are I am not at all regretful. We went to high mass in St. Mark's in the morning and also fed the pigeons on the Piazzetta, and, after we had had lunch, instead of taking a steamer, we took a gondola, and were sculled over to Lido, the Coney Isle of Venice. Here we had a very enjoyable afternoon watching the people promenading, engaging in all sorts of amusements, and we partook of our "uzsonna karó," which is Hungarian for Jause, on a veranda overlooking the Adriatic, and watching the people in bathing. In the evening we took another gondola and saw Venice by moonlight, a truly wonderful spectacle. One of these days, if Venice is still on the map, I want to see one of its carnivals.

In order to get to Wien we had to leave Venice at the ungodly hour of five A.M., but when the weather is mild, and when there are new sights to see, one does not mind early rising. It is the most delightful trip from Venice to Wien—words will not in any way describe it. The mountains, the valleys, the newly-planted fields, the villages and all, one would have to be a novelist of the first water to attempt to give even the faintest idea of the route. Throughout the country everyone we came in contact with treated us with great pains, but we could not but help noticing that we were under a very careful chaperonage, and as we approached the frontier, it became more and more evident. On the train to Pontebba we were under strict surveillance by a plain-clothes man who was relieved at every stop. It was very easy to see that the country was mobilizing, for we literally stumbled over men in uniform everywhere, and on the train there were hundreds of men being put off at every station on the way towards Pontebba. We could see the guards and trenches and batteries from the windows. Everyone we saw had an air of business and secrecy tending almost to furtiveness; and if we could have got them to talk we would have had no end of news.

Upon reaching the border, things were more agreeable; it seemed as if everyone could not do enough for us.

I will not bore you with any more of my experiences. Suffice it to say that I am here in a beautiful city and pleasantly located. I have not had time to get around to the clinics, as my mornings are taken up with this work, but I long for some surgical work.

Sincerely yours,

RICHARD METCALF, M.D.

AN AMERICAN SURGEON IN FRANCE.

(From Our Special Correspondent.)

PARIS, August 4, 1915.

Mr. Editor: One need not be in France many hours before realizing that it is indeed a nation at war. Crossing, as I did, upon a French boat, that fact became fairly well established even before we sighted the shadowy hills of "la belle France." Of the not very numerous passengers, at least half were intimately connected with the war. Several of the men were coming to enlist. One of them, chef in a New York hotel and a naturalized American citizen, explained to me that he would have to work for the rest of his life alongside of men who would talk of nothing but the war. If he did not enlist, he would be compelled to be silent for the remainder of his days. There is much philosophy in his words.

Of the women, one had lost a husband in the war, and, travelling with her little boy of three, she was going to find his body and remove it to the family plot. Another was crossing to join her husband who had been injured in the service. A third told me she had five brothers and nine cousins at the front, and that she had not heard from her relatives at Lille for almost a year. It is surprising how cheerful people can be under such circumstances, but the French are optimistic and great believers in Destiny. "Why worry about submarines?" said one to me. "If we are to die that way, we shall not be hanged." He was right not to worry, for, aside from the alarm caused by several spar buoys at the entrance to the River Gironne, which were thought by the uninitiated to be periscopes, our crossing was free from any suggestion of naval warfare.

We landed at Bordeaux in the teeth of the military authorities. An entire tribunal sat upon our passports, so to speak. The court was presided over by an elderly French officer in uniform, with several dec-

orations on his chest, and a most genial and quizzical expression.

Bordeaux was full of soldiers, some in the old red-trousered uniforms of Napoleonic fame, much the worse for wear; others in the neat bluish-grey uniform of the most recent vintage. The station was full of them; every train carried them away. To witness their leave-taking is to comprehend to some degree the real meaning of war to the enlisted man, and even more to his family.

The women seem brave; the majority are in mourning, but it is distinctly French mourning, with a certain dash which seems to leaven the sorrowful side.

At every station soldiers boarded the train. For the most part they looked like earnest, strong men in whom one felt instinctive confidence. Ladies collecting for the Red Cross passed through the train at every stop. It seemed as though at least three quarters of the people of France were directly interested in the war. The fields, nevertheless, are well cared for. It is harvest time; the wheat is being gathered.

We reached Paris after dark. It is indeed unusual to see a great city carrying on its activities under cover of darkness. Jingling cabs emerge from dark streets; taxicabs dash upon the unwary one from the gloom.

I attempted a stroll, but was shortly collared by a huge, bearded French infantry man who was "illuminated" somewhat more than were his surroundings. He insisted upon our having a glass together, which we did. We must have been a queer pair, but nothing seems to attract attention nowadays.

He was to leave for the Dardanelles, he said. For just a year and a day he had been mobilized, and although he illustrated by eloquent gestures just what he would do to the Turks, one felt him to be a mere tool, unintelligent and not understanding, in the great machinery of war. He was a farmer, he said; he had a wife and three children. He was gaunt, clumsy, thick of speech; he would accept nothing but one glass of wine with "a comrade."

Before very long I shall hope to be able to write you a letter more from a medical point of view.

Yours very sincerely,

G. G. S.

BLOODLETTING IN HEART DISEASE.

WESTPORT, N. Y., September 9, 1915.

Mr. Editor: In reading the discussion of the papers on heart disease, in a recent issue of your JOURNAL, I was very glad that physicians of highest reputation, like Drs. Shattuck and Christian, spoke strongly in favor of venesection in certain cases of cardiac disorder. I shall hope that their voices will not be ignored at the present time. Too often I see instances when I am confident life is shortened or lost by the unwillingness of physicians to use the lancet and thus aid markedly and rapidly a struggling and over-taxed heart. If venesection is objected to, the application of a few leeches to the precordial region, will do wonders at times. Sad to write, however, it is today, difficult to obtain leeches. Even in our large city pharmacies, they cannot be purchased because they are not kept in stock. It is among only a few German druggists, like Elmer and Amend, of New York City, that they are constantly kept on hand. Not long ago, I had this practical experience, and although I obtained the leeches for the patient I saw in consultation, consent was not given to the family physician to apply them. In the over-distended heart of pneumonia, particularly where the right heart is acutely enlarged and the jugular veins are largely increased in size and pulsating visibly, while the lips and fingers are cyanosed and every breath is a labor and torment, heart stimulants are absolutely worthless unless there be bloodletting freely, either by venesection, or locally with leeches. There is no need, in

my judgment, to follow it with a saline infusion. Even in instances where, perhaps, too much blood has been taken, the danger to the patient is increased, rather than diminished by this means. I much prefer a rectal injection of salt and water with some black coffee, if required.

More than once, I have seen a patient, as I believe, die from the use of salt solution by the vein after seemingly, a successful venesection. A most regrettable fact connected with modern, advanced scientific treatment, is the abandonment of a method usually, which properly practised, is of great value to many sufferers.

In times of great stress and imminence, the now somewhat "lost art" of bloodletting, as Dr. Samuel D. Gross, that great American surgeon had it, is unequalled in its power for good.

BEVERLEY ROBINSON, M.D.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING SEPT. 4, 1915.

No contributions for the week ending Sept. 4, 1915.

Previously reported receipts.....\$7814.84

Total receipts.....\$7814.84

Previously reported disbursements:

1625 standard boxes of food @ \$2.20, . \$3575.00

1274 standard boxes of food @ \$2.30, . 2930.20

353 standard boxes of food @ \$2.28, . 804.84

Total disbursements.....\$7310.44

Balance\$ 504.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

RECENT DEATH.

DR. SAMUEL W. DANA, who died on September 1 in New York City, was born at West Lebanon, N. Y., in 1827. After obtaining his preliminary education at the Kimball Union Academy he received the degree of A.B. from Dartmouth College in 1854, and that of M.D. in 1858 from the New York College of Physicians and Surgeons. Upon graduation he immediately settled in New York where he continued active in the practise of his profession until his retirement in 1908. He was a member of the New York Academy of Medicine, the New York County Medical Society and many other organizations. He is survived by two daughters and one son.

APPOINTMENT.

Dr. J. A. Monties has been appointed professor of physiology at the Medical School of the University of Durham, Newcastle-on-Tyne.

The Boston Medical and Surgical Journal

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Massachusetts Medical Society.

MEETING OF THE SECTION OF SURGERY, JUNE 8, 1915.

I.

LOCALIZING NEEDLE FRAGMENTS IN THE TISSUES OF THE BODY BY MEANS OF MAGNETISM. DEMONSTRATION.*

BY GEORGE H. MONKS, M.D., BOSTON.

DR. MONKS called attention to the fact that in certain cases in which needles, or needle fragments, are buried in the tissues of the body, the use of magnetism may help the surgeon in localizing the foreign body. In order to use the magnetic test it is necessary first to magnetize the buried needle, and then, by means of a delicate magnetized indicator of some kind, to localize it.

To magnetize a buried needle an ordinary steel magnet usually suffices, and for an indicator a fine magnetized needle suspended at, or near, its middle by a fine silk thread or even by a human hair. A very small compass may also be used.

The magnetic test is apparently only applicable in those cases where the buried fragment is large, and near the skin.

The technic of the method was then demon-

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strated, and a box containing a number of needle-fragments which had been localized by magnetism, and removed from patients, was passed about for inspection. Accompanying this box were fine magnetized needles attached to delicate silk threads, for use in applying the magnetic test to the needle fragments in the box.

DISCUSSION.

DR. W. M. BOOTHBY, BOSTON: The apparatus devised by Dr. Monks is excellent for locating small elongated bodies, like needles, lying only a short distance below the skin.

It may be of interest to bring to your attention an apparatus recently devised by Prof. Bergonie of Bordeaux for locating fragments of shrapnel imbedded in the deeper tissues. While we were at the American Ambulance Hospital, Paris, Prof. Bergonie demonstrated the apparatus to the Harvard Unit. The apparatus consisted of an electric magnet of considerable power and a motor for rapidly reversing the direction of the electric current. When the electricity flowed in one direction the magnet would attract; when flowing in the opposite direction it would repel the steel or iron fragment. The rapid reversal of the magnetic force set the foreign body into vibration and the palpating finger of the surgeon could locate the body as being directly beneath the point of maximum vibration. By using a sterilized point the exact location could be reascertained after the incision was made and the surgeon was working in the approximate region of the shrapnel fragment.

* See BOSTON MED. AND SURG. JOUR., February 25, 1915, Vol. cxxii, p. 285.

II.

ACUTE PERFORATION OF ULCERS OF THE STOMACH
AND DUODENUM.*

BY IRVING J. WALKER, M.D., BOSTON.

THE stomach and duodenum are today receiving more attention from a surgical standpoint than any other of the viscera. We have now so perfected the diagnosis and the surgical technic of the operation for chronic ulcer of these organs that the mortality from operation is comparatively low. For the time being, in this enthusiasm, we have overlooked the disaster that may result from harboring a chronic ulcer, namely, acute perforation of the stomach and duodenum. There is no condition in which the picture of apparent health is so suddenly changed to one of gravity, so eminently fatal if not recognized early, and so amenable to treatment if operated on without loss of time.

The cases upon which this paper is based were gathered from the surgical records of the Boston City Hospital for the years 1905 to 1914, inclusive. Interest in the subject was aroused by the somewhat high mortality generally attributed to this lesion, in the hope that some reason might be found accounting for this. The series covers 78 cases, operated upon by 17 surgeons. With so large a number of operators, one would expect to find a greater or less variation in operative procedures and end results. However, this was not the case. The technic was, in general, similar, and the operative results practically the same. Nevertheless, a few conclusions have been derived from the review.

Etiology. As to the cause of perforation of the stomach and duodenum, no new light has been cast by this study of 78 cases. Males were found to have been affected more frequently than females, in the proportion of 12 to 1. The average age of the males was 35, and of the females, 29. Sixty-six and two-thirds per cent gave a definite alcoholic history. Probably few of the others were abstainers, judging from the trend of cases admitted to such an institution. While alcohol, perhaps, played no part in causing the perforation, we certainly can indirectly attribute to it a considerable percentage of the mortality, as of those who succumbed 78% used alcohol in more than moderation. This factor and the lack of nutrition in many of the individuals undoubtedly makes the mortality higher in such cases in the large hospitals than we find in private practice; and for this reason one should not compare the statistics of the two.

The site of the perforation was found to have been in the stomach in 42 cases, and in the duodenum in 36 cases. The perforations of the stomach were invariably located within one and one-half inches of the pylorus. In all except two, the site was on the anterior wall, and generally nearer the lesser curvature. The perfora-

tions of the duodenum were all found upon the anterior wall except one. Although Eliot collected eighteen cases in which there had been multiplicity of perforations, none were found in this review. Nevertheless, one should be on constant guard lest a second perforation be overlooked,—as were most of those described by Eliot, being discovered only at subsequent autopsy. Especially is this true of the perforations on the posterior wall of the stomach, which can be easily overlooked unless gas, stomach contents, or exudate appears in the lesser peritoneal cavity.

Diagnosis. In the diagnosis certain symptoms and signs stood out above all others found in the condition, and should be more fully explained. As one might expect, nearly every case gave a previous history of a lesion of the stomach or duodenum which had lasted from a few weeks to several years. The symptom of perforation that was most prominent was the character and location of the pain. This was invariably described as sudden, severe, and sharp, localized generally in the epigastrum, radiating at times into the right lower quadrant. In not a few cases, this sudden onset had been preceded for several days by more or less indefinite pain located in the region of the epigastrum, terminating in the sudden, severe type described above. Many times vomiting immediately followed this severe attack of pain, but was not persistent unless peritonitis was present. Occasionally it was observed as being prolonged before peritonitis had developed in cases of duodenal perforation. This has been described as due to the fact that in perforation of the stomach, with even slight expulsive effort, gastric contents escape more easily through the perforation into the peritoneal cavity than upwards through the esophagus; while in perforation of the duodenum, the stomach is intact and the mechanism of vomiting therefore undisturbed. The classical symptoms of peritonitis seen in most of the fatal cases need not be described.

Shock has been cited as a most important symptom of perforation. In reviewing this series, however, the writer was impressed by its absence in the majority of cases. Examination of the records shows that shock when present is more frequent in perforation of the stomach than of the duodenum. We have no explanation for this observation. Certainly, the amount of shock seen in perforation cannot approach in severity that found in acute pancreatitis or mesenteric thrombosis. Absence of liver dulness, so often spoken of as a sign of perforation, was recorded only five times. Whether this sign was not present or was not discovered cannot absolutely be determined. Suffice it to say, the impression that it made upon the minds of those examining the cases was not great enough to incorporate its presence or absence in the records. Therefore, we are led to believe that the value of this sign in the diagnosis has been exaggerated. Shifting dulness in the flanks, showing

* Read before the Section of Surgery of The Massachusetts Medical Society, June 8, 1915.

fluid, was found in 18 cases. In a board-like abdomen, its presence can be of value in making the diagnosis of perforation only when taken in conjunction with the other symptoms and signs.

Differential Diagnosis. The most common condition with which perforation of the stomach and duodenum has been confused is acute appendicitis. This mistaken diagnosis occurred seven times in this series. The reason is easy to see. In acute perforation, pain may be referred to the region of the right lower quadrant of the abdomen because of the fact that the contents of the stomach or duodenum have gravitated in that direction, producing peritoneal irritation in that region. However, in acute perforation, tenderness and spasm are most marked in the epigastric, and in acute appendicitis in the right lower quadrant. As peritonitis progresses, the difficulty of differentiating these conditions increases, and often the diagnosis cannot be made until operation.

Acute disease of the gall-bladder or pancreas may simulate perforation. The close relationship between the duodenum and the gall-bladder makes it evident how lesions of the one may resemble those of the other. In both, the tenderness and spasm is most marked in the epigastrium, but in perforation it is more apt to be localized nearer the median line. Fluid, if present, is much less in amount in acute disease of the gall-bladder than in perforation. From the location behind the stomach and duodenum, one can easily perceive how acute disease of the pancreas can resemble perforation. However, the degree of shock in acute pancreatitis is more severe than is generally seen in perforation; but here again, as in acute appendicitis, the diagnosis can frequently be made only when the peritoneal cavity is opened. Happily for the surgeon, perforation, acute pancreatitis, and acute disease of the gall-bladder, can usually be treated through a similar incision: one to the right of the median line between the lower border of the ribs and umbilicus. As to differentiating between perforation of the stomach and perforation of the duodenum, while an interesting point in diagnosis, is perhaps not absolutely necessary as it would not influence surgical treatment in case of operation.

Treatment. The treatment of acute perforation of the stomach and duodenum is unquestionably surgical once the diagnosis has been made and the patient in condition to stand operation. Observation, in such cases, results only in a higher mortality. One procedure that all surgeons agree upon is the necessity of closure of the perforation by some means. Suture is the ideal way of closing the orifice. However, instances arise when this is impossible because of the inaccessibility of the opening, or the friability of the tissues to be sutured. Bessel-Hagen² and Downes³ have utilized the gall-bladder as a means of closing the perforation. Others have used flaps of omentum to suture the orifice. Still others, as a last resort, have simply tamponed

the openings with gauze. Cases treated in this way may recover, but usually present a fistula, which may or may not close spontaneously. The question of how much more one should do in the way of operative measures is not yet settled. Theoretically, we should all like to excise or enfold the ulcer-bearing area and do a gastroenterostomy in every case. Practically, however, this is not always feasible, owing to the condition of the patient or to the danger of spreading the already existing infection. Gastroenterostomy becomes a necessity in any case where the pylorus is greatly narrowed because of suture of the perforation. It becomes a matter of choice in the small group of cases seen soon after perforation, where the infection is local and the patient is in good condition. In this group, most writers agree that the procedure is safe and well worth while as a curative measure for the existing ulcer. However, it is not a necessity, as it is well known that the vast majority of perforated ulcers heal with suture alone without gastroenterostomy. In this series, gastroenterostomy followed suture of the perforation in three cases, with recovery in each instance. Given a patient of good operative risk seen immediately after perforation, one would not hesitate to enfold the ulcer and do a gastroenterostomy. However, the average operator will have a lower mortality in a large series of cases by simply suturing the perforation and later, if judgment warrants, doing a gastroenterostomy with comparative safety.

The question of irrigation of the peritoneal cavity was interesting to the writer. In this series, the cavity was generally irrigated in 20 cases, with 9 deaths and 11 recoveries. All the cases irrigated showed a peritonitis more or less marked. Therefore, one should consider a similar variety of cases not irrigated. Of those cases showing peritonitis, which were not irrigated, there were 9, with 5 deaths. The figures here given tend to show that general irrigation of the peritoneal cavity was beneficial in cases of diffuse peritonitis. In the others, it is probably far better to do the cleansing with wet sponges.

It has been said that drainage is not necessary in those cases seen soon after perforation, since the contents of the stomach and duodenum are usually sterile and what infection there is will be cared for by the peritoneum. In 29 cases in this series, cultures were taken from the fluid in the peritoneal cavity. Of these, 14 showed bacterial growth, and 15 were negative. There can be no way of determining macroscopically in a given case whether the fluid present is sterile or not, and if not sterile what may be the number and virulence of the organisms. It was undoubtedly good judgment that led the operators in this series to drain in all except two cases. However, there are cases seen immediately after perforation, where the escaped contents, if not large in amount, can be sponged out and the abdomen closed without drainage. In most cases

where fluid was found in the pelvis, that part of the abdomen was drained through a stab wound. The drains were all dispensed with in from two to four days, unless secondary abscesses developed.

Complications. The most common complication found was peritonitis. This was given as the cause of death in 14 of the 21 cases.

Occasionally it resulted in a localized abscess in the pelvis, right lower quadrant, or subphrenic region.

Post-operative hemorrhage and shock were given as the cause of death in three instances. Pneumonia occurred six times, with four deaths.

The other complications recorded were pleurisy with effusion, and abscess of the lung, with recovery in each case.

Results. In the above series of cases, there were 57 recoveries and 21 deaths, a mortality of 26.9%. This is considerably lower than the mortality usually attributed to this condition. As we have stated above, the individuals were, for the most part, poor operative risks. Add to this the fact that the average duration of the perforation was 25.9 hours. Of those who recovered, the average duration of the perforation was 14.5 hours, and of those who died 37.3 hours. Seventeen were operated upon during the first four hours, and all recovered. Of those operated upon from 5 to 12 hours after perforation, the mortality was 17.9%; of those operated on from 13 to 24 hours, 47.6%; and of those from 25 to 48 hours, 66.2%. Ten were operated upon after 48 hours, with 5 deaths and 5 recoveries. Of those who recovered, it should be said that each had a walled-off abscess, and not a generalized peritonitis, thus accounting for the recoveries.

It would appear from the analysis of these cases, as well as from those of other writers, that a high mortality can generally be attributed, not to the technic of operation, but rather to the unpardonable mistake of allowing such cases to wait hours before surgical advice is sought. A certain number of patients are themselves responsible for the error of not having sought in time medical advice for chronic ulcer of the stomach and duodenum, and later for the symptoms of acute perforation. However, a goodly number of others are themselves blameless, having been rather indifferently treated for indigestion, stomach trouble, or even ulcer, without having the importance of following up the treatment and the danger of the existing lesion impressed upon them.

CONCLUSIONS.

1. The history of disturbance of the stomach or duodenum should always be sought for in cases of suspected perforation.

2. Sudden, severe epigastric pain is the most constant symptom in the diagnosis of this condition.

3. Shock is an inconstant symptom.

4. The value of the absence of liver dulness as a sign of perforation of the stomach or duodenum has probably been overestimated.

5. Simple closure of the perforation, with drainage of the peritoneal cavity is the safest procedure in the majority of cases.

6. The mortality can be diminished by greater care in the diagnosis and in the treatment of chronic lesions referable to the stomach and duodenum, so that but few are allowed to reach the stage of perforation, and even those, given the benefit of surgical measures while the chances of recovery from operation are still good.

REFERENCES.

¹ Eliot: American Journal of Surgery, December, 1908 to January, 1909.

² Bessel-Hagen: Deutsch. med. Woch., 1907, xxxiii, 1657.

³ Downes: Annals of Surgery, 1910, Vol. 2, p. 173.

III.

CONCERNING TRAUMATIC RUPTURE OF THE DUODENUM AND DUODENAL FISTULA. WITH THE REPORT OF A CASE.*

BY DAVID CHEEVER, M.D., BOSTON.

[From the Peter Bent Brigham Hospital, Boston.]

THE comparative rarity of rupture of the duodenum, due to injury, and more particularly of cases of recovery from this condition, justify the reporting of a single case and a discussion of the principles involved in its treatment, which are not confined in their application to this particular trouble.

The patient, R. J. S., a schoolboy fifteen years of age, on January 6, 1914, tried to cross the street in front of a slowly moving automobile, but slipped on the ice and fell down in front of it. Witnesses stated that one front wheel ran over his body. The accident occurred at 1.30 p.m. He was able to extricate himself from under the car, and walk to the sidewalk, whence he was taken home, and his physician called, who found him in a condition of shock and suffering a good deal of abdominal pain. He was brought to the Peter Bent Brigham Hospital, about one and a half hours after the injury.

Examination showed a well developed boy in a condition of slight shock: pulse 50, blood pressure 110, respiration somewhat rapid, temperature normal. Except for a slight abrasion on the left thigh, there was no external sign of injury. The abdomen was slightly tender and spastic generally, but there were no localizing signs, and, with the exception of slight dulness in either flank, which did not change on change of position, was practically negative. At this time the points of maximum tenderness were on either side about the level of the umbilicus. The objective signs did not seem to justify intervention at this time, especially as the testimony of witnesses differed as to whether or not the boy had actually been run over or simply thrown to the ground and stunned. When seen again, about three hours later, he looked more sick, had begun to complain of abdominal pain, and showed fairly well-marked

* Read before the Section of Surgery of The Massachusetts Medical Society, June 8, 1915.

tenderness in the right iliac region.—scarcely any tenderness in the epigastric region. During examination at this time the patient vomited a small amount for the first time. Pulse was 84. Diagnosis of probable rupture of a viscus was made. An operation was advised, and later accepted.

About eight hours after the original injury, under ether anesthesia, the abdomen was opened in the middle line below the umbilicus, since the evidence seemed to point more to an injury in the lower abdomen than elsewhere, and in the writer's experience the lower part of the ileum had been the most frequent seat of traumatic rupture. Free gas and a large amount of bloody, brownish fluid was found, and sponged out of the pelvis and either iliac fossa. The small intestine was now examined from the ileo-cecal valve without finding any injury. It was not until a sponge was thrust upward toward the region of the gall-bladder that the first correct clew as to the seat of the lesion was found in the appearance of a green staining, evidently due to bile. Another incision was at once made through the right rectus from the costal border downward, and, after considerable difficulty, due to the infiltration of all omental tissues by the extravasating fluid, a laceration admitting a thumb was found on the posterior aspect of the first part of the duodenum about 3 cm. distal to the pylorus. It was circumferential to the long axis of the gut, and its edges were pouting as though it had been caused by a bursting force. Its situation was such that it was in part extra- and in part intra-peritoneal, which made closure difficult, but a fairly good repair was made with chromic cat-gut. The abdomen, all of which showed traces of extravasated fluid, was thoroughly washed out with salt solution, and drains carried down to the injured duodenum and to the bottom of the pelvis. The patient left the table in rather poor condition.

The immediate after-treatment consisted of the Fowler position, proctocolysis, and appropriate stimulation. For the first three days, he showed marked toxemia and seemed to be going down hill, but then began to improve. On the fifth day after the operation, a suspicious discharge appeared in the upper wound, together with evidence of tissue digestion and skin irritation. Soon after, a profuse, bile-stained, extremely irritating discharge became established, which caused the wound to re-open throughout its length, undermining the skin and rapidly digesting the skin edges and the tissues of the abdominal wall. Whatever food was ingested appeared in a few minutes afterward in the discharge, and it seemed unlikely that any material portion passed onward. The boy's general condition was now very poor, showing more prostration and exhaustion than would be expected merely from the lack of nutrition and the amount of obvious infection, since there was no evidence of a general peritonitis. It was evident that, unless the discharge could be stopped, a fatal issue must come. Accordingly, a small rubber tube was carried down to the bottom of the wound, and held in place by appropriate means, and a continuous irrigation of the sinus with sterile water inaugurated,—the overflow being conducted into receptacles by means of a bank of rubber tissue, which was made to adhere to the skin about the wound by means of chloroform. By this means the digestive juices were kept highly diluted, and immediate cessation of the destructive process was noted, together with an improvement in the patient's general condition. This continuous

irrigation was continued for five days and nights, requiring the presence of an attendant constantly by the bedside. On the fifth day, it was omitted in part, because the secretion had markedly diminished, and no more food was appearing, and on the sixth day it was discontinued, and from that time there appeared no more leakage from the fistula, and the wound began to heal satisfactorily. No more trouble was experienced from this source, but the rest of the convalescence was stormy, requiring three subsequent laparotomies in the course of the next month for the drainage of large residual abscesses in the lesser peritoneal cavity, in the right iliac fossa, and in the pelvis, respectively.

He was finally discharged fifty-eight days after his admission, and has since made a complete convalescence, and presents no symptoms referable to this illness.

Ruptures of the intestines by trauma are relatively common lesions, and of these the duodenum, by virtue of its fixed position against the spine, yields its share. Berry and Giuseppi's¹ analysis of 132 lacerations of the intestinal tract gives the following figures:—

Large intestine.....	10
Duodenum	23
Duoden-Jejunal flexure.....	3
Jejunum	32
Ileum	32
"Small intestine" (not further specified).....	25
Large and small intestine together.....	4
Incomplete rupture.....	3

Hertle's² figures in 122 cases are not essentially different:—

Large intestine.....	10
"Small intestine" (not further specified).....	31
Jejunum.....	29
Ileum	40
Duodenum	12

Combining these figures the conclusion is reached that 13.7% of all intestinal ruptures (excluding lacerations due to instrumental perforation of the abdominal wall) involve the duodenum, or nearly twice as many as involve the large intestine (7.8%).

Traumatic rupture, wherever localized in the intestinal tract, is notoriously fatal. Combining the figures of three large series of cases, those of Berry and Giuseppi, Hertle and Travastjerna,³ we find a general mortality of over 80%. Yet even more striking are the figures for rupture of the duodenum, 92.6%; or, including 4 cases reported in the last year, 93.1%. Several obvious factors contribute to this mortality,—the largely retroperitoneal situation of the duodenum permits the rupture and extravasation to be extra-peritoneal where its evidence is masked until too late, or where it is actually overlooked during exploratory laparotomy. Thus Meerwein,⁴ writing in 1907, states that of 28 cases of extra-peritoneal rupture operated on, in six the lesion was not found until autopsy. The rapid and extensive diffusion of the infiltration is favored by the loose areolar tissues of the pos-

terior abdominal wall, so that huge phlegmons are frequent. The deep-seated and inaccessible tear presents technical difficulties in operative closure. Finally, the noxious character of the contents of the duodenum, whether merely intensely irritating and digestive in their action, or possessed of a specific toxic action, must be reckoned with.

In an interesting paper, Kanavel⁵ reports two cases of traumatic rupture of the duodenum, following the kick of a horse and a blow by a wagon pole, respectively, operated on 52 hours and 34 hours after the injury and presenting a rupture of the retro-peritoneal portion of the duodenum in each instance, and in addition, in the first case, a laceration of the root of the mesentery, which allowed the extravasation to enter the abdominal cavity. Both patients died,—one 6 hours and the other 50 hours after the operation; in both instances it seemed that death was more speedy and apparently the result of a much graver toxemia than would be expected from the degree of peritonitis, or of local injury, existing.

Reasoning from his observation of this peculiar toxemia, and from the well-known fatal course of high intestinal obstruction, both experimental and clinical, in which the secretions of the duodenum undoubtedly play an important rôle, Kanavel ascribes a specific toxicity to the extravasated material. In most of the recorded cases no especial stress is laid by writers upon this point. Sometimes, indeed, the fatal progress of the disease is comparatively slow, as in Maddock's⁶ patient, who was seen six weeks after a severe blow in the right abdomen, when an extensive subphrenic and retroperitoneal phlegmon was incised, followed by death in seven days. Autopsy showed a rupture of the second part of the duodenum. In comparatively few instances has fat necrosis been reported. On the whole, while a specific toxicity may well be suspected, it cannot yet with certainty be ascribed to the duodenal contents, in the absence of changes wrought by stasis and circulatory strangulation incident to obstruction of the gut. Kanavel reviews briefly the literature of this subject to date, including 94 cases which show a mortality with or without operation of 92.6%. Since his paper, a brief review of the literature discloses four additional cases, all operated on and all fatal.

The mechanism of traumatic rupture of the intestinal tract in general is usually described under three heads: a rupture due to (1) a crushing force, (2) a bursting force, and (3) a tear due to sudden traction. In the first group, the intestine must be compressed between the impacting force and a part of the skeleton, as the spinal column or the pelvis. Evidently the third portion of the duodenum, fixed across the lumbar spine, is ideally situated for this lesion, and it is in fact the part of the duodenum most frequently injured. Keller⁷ considers that the bursting rupture is very rare, since it is sup-

posed to require that the loop be full of liquid whose means of egress is obstructed, and since the duodenum is rarely full he believes that its traumas are not of this character. To the writer, however, it seems probable that the present case belongs to this class, since the automobile wheel mounting upon the abdomen from the right side would naturally drive the gaseous and liquid contents of the second part of the duodenum against the closed pylorus, thus effectually producing a bursting pressure. Moreover, it is difficult to conceive how the first part of the duodenum, retreating from the convexity of the lumbar spine, could be subjected to a direct crushing force sufficient to produce rupture.

The symptomatology of this condition needs no extended comment. Local pain, muscle spasm, tenderness, increasing pulse rate, later vomiting, perhaps shifting dulness in the flanks, leucocytosis, unless the toxemia be overwhelming, constitute the familiar picture of a severe abdominal lesion. A word of warning may be uttered, however. If the rupture be retroperitoneal, the condition may at first be masked, but soon a tender tumor, not shifting, in the right hypochondrium and umbilical region, with evidence of physical shock will give the clue. If intra-peritoneal, the effusion may cause pain not so marked at the point of rupture as in the more dependent portions of the abdomen,—the iliac fossae or the pelvis, due apparently to the intense irritation of the peritoneum by the gravitated contents. In the present case this was the cause of an ill-placed primary incision and loss of time. Absence of liver dulness, a sign handed down from text-book to text-book as pathognomonic of rupture of a hollow viscus, is in reality a hollow mockery. Rarely demonstrable in the early and curable stages of a perforative peritonitis, when found it gives assurance of the correctness of the diagnosis and of the hopelessness of intervention.

When the abdomen has been opened and the lesion identified, what course shall be pursued? Repair of the rupture by suture, resection of the bruised bowel with gastro-jejunostomy and duodeno-jejunostomy, closure of the proximal limb and gastro-jejunostomy, leaving the duodenal contents to find their way through the pylorus and thus into the intestine, have all been successfully practised. It is no time, however, for elaborate procedures. The evidence is overwhelmingly in favor of promptness, simplicity and speed. A simple repair of the laceration by suture, washing out the extravasated material, and the institution of proper drainage are the indications, reserving resections and anastomoses for the rare cases where local repair is impossible. If the patient survives the immediate effects of trauma, the operation for repair of the lacerated bowel, the threat of peritonitis and of a primary retro-peritoneal cellulitis, a complication of gravest portent may be introduced by the failure of the repair and the establishment

of a duodenal fistula. Such a fistula never heals unaided, and if not healed is invariably fatal. Pannett,⁸ writing in 1914, reports a case of recovery from a duodenal fistula, and says but three other cases are to be found in the literature of the previous ten years, and indeed one of these, that of Berg, should scarcely be included, since, although a duodenal fistula following a cholecystenterostomy ceased discharging, the patient died 17 days after operation! W. J. Mayo,⁹ writing in 1914, reports 3 cases due to injury to the duodenum by a clamp placed on the kidney pedicle during a right nephrectomy, all fatal. Subsequently,¹⁰ in 1915, he reports an additional case where he exposed the laceration by transperitoneal mobilization of the duodenum and repaired it, with recovery. Probably further reports will show many recoveries from duodenal fistula, but of its gravity there can be no question. The methods of combating these fistulae are of vital interest to the surgeon confronted by one. The secretion evidently is composed of the gastric juice with whatever food has been taken, the bile, pancreatic juice and succus entericus, or secretion of the duodenum itself. Of these substances, by far the most important is the pancreatic juice with its tissue-digesting enzymes and its alleged specific toxicity incidental to auto-digestion or its own absorption into the blood stream. Another invariable feature of these fistulae is the loss of practically all nutrient taken into the stomach, with consequent rapid failure of nutrition and vital resistance. Efforts then should be directed toward neutralizing or removing the pancreatic juice and increasing the nutrition by rectal feeding, or even by jejunostomy. There is no agent which wholly stops the secretion of the pancreas. So far as is known, it is increased by the presence of food in the stomach, which inaugurates nervous impulses through the splanchnic nerves, causing a secretion rich in the pancreatic ferments, but poor in the alkaline elements. This action may be in part inhibited by atropin. In addition it is believed that the acid gastric juice acting on the duodenal mucous membrane forms a hormone (seeretin) which, having been absorbed by the blood, is carried to the pancreatic cells and there stimulates a secretion which is said to be rich in the alkalies and poor in ferments. Reasoning from these premises, it would seem proper to withhold all food from the stomach, or give only that which, like milk, does not excite gastric secretion, to give an alkali to further insure against gastric acidity, and to keep the patient under the influence of atropin. The chief dependence should undoubtedly be placed, however, on the dilution or mechanical removal of the secretion as fast as it appears, either by constant irrigation, as employed in the case reported today, or by some appropriate suction apparatus, as employed recently by Jones¹¹ and Williams,¹² or even, perhaps, by immersion of the patient in the constant bath. It may be noted in this connection

that the pancreatic juice, if removed soon after its entrance into the duodenum, is comparatively harmless since its most important ferment, trypsinogen, is relatively inert until activated by the succus entericus of the duodenum.

Before this audience, it is superfluous to insist on early operation, but it must be urged on those whose experience with abdominal traumas is only occasional. Hertle tells the story in his analysis of 109 cases of intestinal rupture: Of those operated on in the first 6 hours, 48% died; during the 7th to 12th hour inclusive, 54% died; during the 13th to 24th hour, 79% died; during the 24th to 48th hour, 93% died. Later than 48 hours, 80% died (in 16 cases the time of operation is not given). The abdomen should be opened on well-grounded suspicion,—when the diagnosis is sure the golden moment may have passed. The writer's experience has convinced him that in case of a pedestrian struck by an automobile, a concussion of the brain must be regarded as a fractured skull or brain laceration, and a contusion of the abdomen as a rupture of a viscus until proved otherwise, and that the reliable story of the passage of an automobile wheel over the abdomen justifies, or even demands, intervention.

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IV.

CHOLELITHIASIS. AN ARGUMENT FOR EARLY OPERATION.*

BY JOSHUA C. HUBBARD, M.D., BOSTON.

AFTER the symposium on cholelithiasis at the meeting last year there is little to be said on the subject. There is, however, one point I wish to emphasize in this paper. The facts to prove it I shall not deduce from many statistics compiled from many sources, but from the records of one institution only, both autopsy and clinical. The general statement is this, that as soon as the diagnosis of gall-stones is made it is the duty of the doctor in charge, subject to possible complications, to advise operation. The

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profession and the public have been brought to the realization of the necessity, in certain diseases, of immediate or early surgical treatment. Appendicitis, for instance, is now recognized by the public as a disease for surgical treatment. In fact, I have sometimes found the physician recommending operation more strongly than the surgeon. In this list of diseases for early operation cholelithiasis has a place, I believe, and I think I can prove the truth of my statement, that with the establishment of a diagnosis of gall-stones, the treatment becomes surgical. There may not be, as in appendicitis, the necessity for immediate operation, but the necessity does exist for early surgical interference.

Before going on to the actual proof of my belief let us review for a moment the life history, as it were, of a gall-stone. We know that gall-stones are found in the great majority of cases in the gall-bladder itself rather than in the ducts. The one necessary factor (according to Osler) for the formation of gall-stones is a low grade inflammation of the biliary tract. This inflammation is started by microorganisms, usually typhoid or colon bacilli, which, reaching the liver through the circulation either portal or general or by the common duct from the duodenum, induce a low grade cholecystitis.

The second requisite for the formation of stones is an obstruction to the outflow of bile from the gall-bladder. This may be due to a general muscular inactivity or to some mechanical obstruction.

This inflammation and stagnation then bring about in the gall-bladder a desquamation of the lining epithelium, an albuminous exudation and an increased formation of mucus and cholesterol, and a precipitation of the biliary salts, and thus the formation of a gall-stone.

A stone formed in this manner remains quiescent in the bladder until its presence causes secondary changes or so much irritation that it is expelled through the ducts with the resulting symptoms of colic.

My proof that cholelithiasis is a disease for operative treatment is established from two sources, clinical and autopsy. First, let us consider the clinical proof.

In a series of 220 cases operated upon at the City Hospital, 31 died. Why did these 31 die? Because they were more seriously diseased than those who recovered. This was shown by the greater frequency in them of chills, jaundice, enlarged liver, and a palpable mass in the region of the gall-bladder. The condition of the gall-bladder itself and the situation of the stones also showed greater severity of the progress. The bladder was inflamed, necrotic, perforated or contained pus in a large proportion, 8 out of 31, and stones in the ducts were found in half the cases, 16 in 31. The actual causes of death were sepsis, pulmonary complications, and a progressive general weakness. Why were these cases more severely diseased? Because the stones had been present so long in the gall-

bladder that they induced secondary changes in the bladder itself, infection, necrosis, perforation, or in the liver itself, or they had gradually been expelled from the bladder into the ducts. Could these stones have been removed from these patients before the secondary changes had induced a more serious condition, the operations would have been less severe. Removal of a stone from the common duct subjects the patient to a more severe operation than removal of stones from the gall-bladder. Could, therefore, these patients have been operated upon early, some, at least, would not have died, for the mortality of cholecystectomy or cholecytostomy is between 3 and 4%.

From a clinical point of view, therefore, operation as soon as possible after the establishment of a diagnosis offers the best prognosis.

The advantage of early operation is shown even more clearly by an examination of autopsy records. All autopsy records at the City Hospital were examined, to determine the cause of death where a gall-stone was found post mortem. Cases from the surgical wards in this list were few, for the stones had been removed *ante mortem* by operation. Cases dying in the other divisions of the hospital, therefore, make up the greater number of the cases. There were 108 autopsies where a gall-stone was found. In 76 cases the stones were found in the gall-bladder only. Of these 76, nine died as a result of the presence of the stones, the causes of death being hepatitis, cancer of the gall-bladder, pancreatitis and abscess of the liver.

Among the 108, 32 had stones which had passed from the gall-bladder into the ducts. In 14 of these death was due to the gall-stones, the causes of death being abscess of the liver, peritonitis, and cholecystitis. In other words, gall-stones in the gall-bladder killed in 11%, while stones in the ducts killed in 43%. What could be a greater argument than this for operating early, while the stones are in the gall-bladder? The relative mortality that this series of cases of gall-stones shows to exist between those operated upon early and those treated surgically, late or only after complications have arisen, is convincing evidence for prompt surgical interference as soon as the diagnosis has been established.

I collected these figures with an unbiased mind and not to prove any preexisting idea of my own. They showed so clearly the advantage of early operation that I have ventured to bring them before you. It seems to me now that it is our duty to educate the public to accept operation as readily in cholelithiasis as in acute appendicitis.

These clinical and autopsy records, if they show anything at all, show that the prognosis in cases of gall-stones is dependent on the length of time the stones have been present. In a given individual the earlier they are removed the better the prognosis.

v.

A BRIEF CONSIDERATION OF ACUTE PANCREATITIS
WITH CASE REPORTS.*

BY CHARLES E. DURANT, M.D., HAVERHILL, MASS.

I SHALL make an effort in this paper briefly to review the subject of acute pancreatitis; in addition, I shall present abstracts of five cases, which I have personally observed, and in four of which I have operated.

It is well understood by those who have had personal experience, and by those who have made a careful study of the literature, that the condition in question is one of the greatest importance, because: (1) it is relatively infrequent; (2) it is not always easy of recognition, and therefore, perhaps often overlooked in the beginning; (3) in some instances, it is tremendously rapid in its course and fatal in its termination, and (4) in all cases, early diagnosis and prompt operation are essential to success. Granting the truth of these propositions, there should be some advantage in restating the problem, with the idea at least of renewing old impressions grown dim, it may be, through the inexperience of scant opportunity.

As regards the cause of pancreatitis, one is surer of the fact of infection than he is of its *modus operandi* in many cases; the colon bacillus is, as one would expect, the organism most commonly present. One of the most significant clinical facts concerning pancreatitis is the frequency with which it is associated with gallstone disease. In passing, the citation of a few statistical groups may be made, to indicate how often the two conditions are found together. Thus, Egdahl in 105 cases found 42% complicated with gallstones; Körte, 47% in 44 cases; Dietrich, 50% in 16 cases; in the London Hospital, 11 autopsies in cases of acute pancreatitis, showed gallstones present in 7, or 63.6%. It is unnecessary and superfluous to multiply statistics, for the proportion is practically the same in the reports of other observers. Such figures are significant, inasmuch as they establish definitely a relationship which cannot be disputed.

Opie demonstrated years ago that a calculus impacted in the ampulla of Vater caused regurgitation of bile through the duct of Wirsung, and that bile injected into the pancreatic ducts, produced pancreatitis of typical pathology. These observations are fundamental and serve to explain in a definite way the development of certain cases of pancreatitis associated with cholelithiasis.

The problem would indeed be simple, if calculous impaction of the ampulla of Vater were always found, for the rationale of the process would be at once apparent. But it is important to note that when gallstones are present, only 20% are found in this location. Moreover, it has been shown that a calculous impaction of the

common duct in the ampulla will be followed by direct regurgitation of bile into the duct of Wirsung in only 30% of the cases. This is to be accounted for by anatomical variations. It is obvious, therefore, that infection of the pancreas in gallstone cases, involves other factors than simple regurgitation of bile through mechanical influences. Efforts to explain the mechanism of infection in cholelithiasis without impaction in the ampulla have been made by Deaver, who claims direct and definite communication between the lymphatics of the gall-bladder and the pancreas, but recent experiments indicate that invasion by this route cannot be proved and is, moreover, improbable.

In addition to the work of Opie, many other laboratory experiments have been made by injecting solutions of various chemicals, extracts of intestinal juices, diluted bacterial cultures, etc., into the pancreatic ducts and into the pancreas itself. The story of these experiments is long and technical; the results are neither uniform nor definite, and their recital would be unprofitable in a clinical survey. The conclusions of Polya, quoted by Sir Frederick Eve, may be accepted as a brief and fairly complete résumé of our present knowledge. "Typical pancreatic necrosis, with hemorrhages, fat necrosis, and a rapidly fatal course, may be originated most certainly, with strongly active trypsin solution, less constantly, by duodenal contents, and by bile mixed with bacteria, rarely by the contents of intestinal fistulae, and extract of intestinal mucous membrane, and only exceptionally by bacteria alone." Can it be denied that the problem is complex and needs further elucidation?

Cases of pancreatitis have been reported in association with non-calculous inflammation of the gall-bladder and bile passages, which presumably bear the same relation to the biliary infection as has been referred to in gallstone cases with impaction in the choledochus—at present unexplained.

In cases arising in the course of such diseases as typhoid and gastric ulcer—a not inconsiderable number—direct invasion of the duct of Wirsung or the duct of Santorini may be assumed. On the other hand, when pancreatitis occurs as a complication of mumps, and quite a number of cases have been reported, we may reasonably conclude that infection takes place through the blood stream. Clinical observations seem to indicate that males are more often affected than females, that the subjects of pancreatitis are likely to be obese, and that alcohol has some apparent predisposing influence. Moynihan states that a very considerable number of cases occur in pregnant women at about the third month of pregnancy.

I need dwell but a moment on the pathology of pancreatitis. The gland is swollen and soft; mottling due to hemorrhage is seen; also fat necrosis, both within the gland and on the omentum and mesentery. In certain cases, extensive fat necrosis even to complete sphaerulation of the

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entire gland may occur with great rapidity. In the less severe forms of infection, the necrotic process is more limited and a localized abscess results, often invading the peripancreatic fat, and sometimes occupying a considerable space in the lesser omental bursa. Serous or bloody effusion is usually present in both greater and lesser sacs. General septic peritonitis is frequently the terminal event, either by direct extension of the process itself, or as the result of the rupture of an abscess.

Mikulicz suggests the pathological analogy between acute pancreatitis and phlegmon, in which the process shows different degrees of intensity, varying from the mildness of simple furuncle to a more or less extensive destruction of the organ, with involvement of the retro-peritoneal tissues and the sub-phrenic space. Körte goes so far as to say that "Only a small number of cases of pancreatitis reach the stage of necrosis, the majority dying from acute inflammation"—and of course, toxemia—"before that stage is reached."

The clinical picture of this condition is strikingly illustrated by Fitz in his classic monograph of 1899.

"Acute pancreatitis," he says, "is to be suspected when a previously healthy person, or sufferer from occasional attacks of indigestion, is suddenly seized with violent pain in the epigastrum, followed by vomiting and collapse, and in the course of 24 hours, by a circumscribed epigastric swelling, tympanitic or resistant, with a slight rise of temperature."

This description is concise, exact and complete—nothing of importance has been added to it, and all subsequent observations have confirmed its value. The clinician will do well to remember these words of Fitz, for they will help him easily to visualize and more readily to recognize "one of the most serious diseases which he is ever called upon to treat."

Notwithstanding this clear cut definition, acute pancreatitis is by no means always easy of recognition. After many years of extensive experience in abdominal surgery, the late Dr. Maurice H. Richardson remarked as follows: "I have never seen enough of this disease to feel confident of my diagnosis when I have made it. From the nature of things, no man is likely to recognize with confidence the disease—from its infrequency, if for no other reason. Were these acute infections of the pancreas—or for that matter of the upper abdomen from whatever cause—as common as infections of the appendix, the surgeon would soon be able to recognize the clinical picture. As it is, he sees so infrequently that picture, that a study of it reminds him of the truth, but does not recall it vividly and beyond mistake."

A history of previous attacks of epigastric pain or distress is often present, as Fitz remarks, in cases in which pancreatitis should be suspected; these attacks may be due to ulcer, gall-stone colic, or to slight pancreatic hemorrhages,

which are said often to precede a definite attack of acute pancreatitis. Cyanosis of the face or abdomen has been referred to by Halsted and others as of special significance; it is present in some cases, but certainly not in all. One recent writer lays considerable stress upon a "splitting backache," particularly marked in the left lumbar region. This he regards as of almost pathognomonic value.

In differentiation, one must first give careful attention to the possibility of perforative lesions of the gall-bladder, duodenum and stomach. Perforation of the gall-bladder, while by no means rare, is not common, and is most likely to be preceded by definite historical evidences of cholelithiasis, or general and localized manifestations of acute inflammation. The pain of perforation of the stomach and duodenum is, often enough, overwhelmingly prostrating at its onset, perhaps even more so than in pancreatitis, and as a rule, less easily relieved by morphine. One observes, furthermore, in this condition, the development of generalized, board-like rigidity of a very distinctive type. In pancreatitis, on the contrary, the rigidity is less marked, and is limited to the epigastrium, where one finds in addition tympanitic distension, with perhaps, a sense of deep resistance. Moreover, evidences of shock and collapse, in association with perforation, are of relatively short duration, and patients seen within a few hours after the initial pain, are not usually found in shock. This free interval, so to speak, persists until the appearance of peritonitis, which changes the picture for the worse. In pancreatitis of the fulminating type, evidences of shock and great depression continue from the beginning.

It is my belief that acute pancreatitis is more often mistaken for acute intestinal obstruction than any other condition. The initial vomiting, and rapidly developing distention of the upper abdomen, are certainly suggestive. In pancreatitis, there is, furthermore, marked inhibition of peristalsis from shock and toxemia, so that the passage of flatus is limited and difficult, and enemas in this condition are by no means followed by satisfactory evacuations either of gas or fecal matter. If one carefully analyses the symptoms, however, he will find that the pain of pancreatitis is more persistent, not intermittent or colicky in character, that the degree of early shock produced is much greater than in ileus, and that flatus can be, and usually is, passed in small quantities, voluntarily or after the use of enemas. Another point of importance in favor of the presence of the pancreatic lesion, is the localized tenderness in the epigastrium, which is marked and persistent, as has already been pointed out, and which one fails to find in early high obstruction in the intervals between the periods of intestinal spasm.

In spite of the difficulties which all admit, it seems to me that a careful, even though rapid analytical consideration of evidence along these lines, will enable the observer to arrive at a

reasonably probable diagnosis of pancreatitis in most cases, if he holds it in his mind as a possibility when dealing with the acute emergencies of the upper abdomen.

The prognosis in pancreatitis depends upon the intensity of the inflammatory process. In the hyperacute variety, it is obviously exceedingly grave; it could not be otherwise when we consider how rapidly wide-spread necrosis occurs, accompanied as it often is, by a prostrating and deadly toxemia. In the milder grades of inflammation, showing less tendency to rapid necrosis, the outlook is more favorable. If suppuration occurs, and the condition is recognized before the development of peritonitis or other complications, there is a fair chance. Without attempting to particularize by the citation of statistical data, which even now are somewhat limited, it may be confidently asserted that early diagnosis and prompt operation have materially improved the prognosis, and further improvement can be looked for only along these lines. Admitting the truth of these generalizations, it is clear that an early diagnosis is imperative, and that even a reasonably probable diagnosis constitutes an absolute indication for operation.

The operative procedure may be described as follows: A median epigastric incision is made; if pancreatitis is present, a quantity of dirty, brownish fluid will usually escape. This is suggestive, but not distinctive. It may be said in passing, that in the early cases where surgical interference was practised, drainage of this fluid without direct attack upon the pancreas itself was considered sufficient; such simple measures were proposed by Hahn and followed by him, Pels-Leusden, Wolsey and others, all of whom have reported successful cases. An examination of the omentum will reveal the presence of the small, yellowish-white spots of fat necrosis in scattered areas. This sign is always definite, and positive evidence of a lesion of the pancreas, and further procedure should be directed towards that viscous. To reach it, three routes have been employed: first, above the stomach through the gastrohepatic omentum; second, below the stomach through the gastrocolic omentum, and third, through the transverse mesocolon. The objection to the route above the stomach lies in the fact that when the stomach is in a high position, it does not give easy access to the pancreas, and for this reason it is not desirable. The route through the transverse mesocolon, while giving easy access to the more central portions of the gland, does not allow one readily to reach its lateral extensions, unless a large rent is made in the mesocolon, which is to be avoided. Furthermore, this approach affords no opportunity to protect the lower abdomen from dangerous extravasation. The best route of all, it seems to me, lies through the relatively thin and less highly vascular gastrocolic omentum. A longitudinal tear of moderate length brings one at once to the pancreas. As much of the continuity of the pancreas as can be reached, should be ex-

amined for softened areas, and wherever found they are readily and safely opened by blunt puncture with the urethral sound or some similar instrument. This method suggested by Körte is, in my opinion, of the greatest value. The instrument may be pushed into the gland in various directions, chiefly, of course, laterally, for a considerable distance, sufficient indeed to allow the introduction of a drainage tube directly into its substance. It is not possible, in my experience, to hold the tube in position by the use of sutures, but it may be retained with sufficient security by packing about it a good-sized gauze tampon surrounded by rubber dam. It is my impression if the patient does well, one should be in no hurry to remove either the tube or the tampon; I should think it had better be allowed to remain for a period of from five to seven days. I have not referred to the question of a counter incision in the loin, for the reason that such a procedure would be more applicable in subacute cases with abscess formation in the lesser sac. In cases where the trouble is limited to the head of the pancreas, Körte has suggested and practised mobilization of the duodenum to the left, following the Kocher procedure for impaction of stone in the ampulla of Vater. It is clearly the duty of the surgeon to examine the gall-bladder and bile ducts, to determine the presence or absence of cholelithiasis, but I cannot be persuaded that any operative interference should be attempted looking towards the removal of gallstones or drainage of the bile tract under circumstances so critical. If gallstones are found to be present, I believe their removal can be more safely accomplished at a later time, if the patient recovers. I apprehend that in most of these cases, vigorous measures will have to be employed to combat shock, which is usually present in considerable degree when the operation begins.

The following list of cases, briefly abstracted with some comments, is appended:

CASE 1. Male, 52, of aleoholic habits, and a previous history of repeated attacks of what was supposed to be gallstone colic. He was taken sick 48 hours before operation with a sudden, severe, epigastric pain, vomiting and constipation. The severity and urgency of his condition became increasingly apparent, and he was sent to the hospital. Examination showed an obese man, having a small, rapid pulse of poor quality, temperature 101.2°, face anxious, and quite cyanotic. A marked degree of shock was evidently present. Vomiting still persisted and the bowels did not readily respond to enemas, although some gas was expelled and a small quantity of fecal matter. There was marked distention of the upper abdomen, with tenderness on pressure over this area, and some degree of muscular spasm. The urine was free from sugar. On the question of diagnosis, perforation of the gall-bladder was thought of and could not be positively excluded; on the whole, however, the condition seemed to be too severe and to have developed too rapidly to warrant this conclusion. In perforation of the stomach or duodenum, one would have expected more generalized rigidity and less shock. Intestinal obstruction was

excluded by the escape of small amounts of gas and feces. A diagnosis of acute pancreatitis seemed probable. The abdomen was opened immediately; the peritoneal cavity contained a quantity of dirty, brownish fluid; spots of fat necrosis were found scattered widely over the omentum. The patient suddenly collapsed and died on the table. I made an incision through the transverse mesocolon exposing the pancreas. It was swollen throughout, softened, and, on section, showed the characteristic mottling of the acute hemorrhagic form of infection. The gall-bladder contained many calculi.

This case was typical clinically in all respects, and the result was what might have been expected. The presence of gallstones made it practically certain that biliary infection was also present—an additional feature of one of the classical types of pancreatitis.

At that time I should not have attacked the pancreas directly, but intended to drain the abdomen after evacuating the septic fluid. This view was based on a knowledge of the work of Hahn, Pels-Leusden, Wolsey, Halsted and others who had reported successful cases treated by this method.

The importance and value of early direct attack upon the pancreas for purposes of drainage and to prevent necrosis is now generally recognized. Necrosis often rapidly supervenes as has already been pointed out. In Körte's list of 38 operations, there were 34 in which this procedure was carried out; of these 18 recovered and 16 died. In four cases no effort was made to drain the pancreas—death resulted in each instance. No operation should be considered complete unless this is done.

CASE 2. Obese female, 53, single, admitted to the hospital Oct. 23, 1909, with a diagnosis of "gallstones." She complained of epigastric pain, moderately severe in type, vomited bile persistently, and belched great quantities of gas. The bowels could not be moved satisfactorily by repeated doses of cathartics and enemas. The upper abdomen was distended and there was marked tenderness, especially under the right costal border. The urine showed 12-1 per cent. of sugar on several examinations. The temperature had averaged about 101°, and the pulse, about 120 from the beginning of the attack. No jaundice. It was thought by the attendant that the patient was suffering from partial obstruction, or possibly gall-bladder inflammation. A conservative point of view was held as long as she did not grow rapidly worse. I saw her on Nov. 14, about three weeks after entrance, and the question of the presence of pancreatic disease was raised. It was, we thought, sufficiently strongly suggested to warrant an exploration, and on the following day this was done. Cloudy fluid was present and extensively distributed fat necrosis. The pancreas was investigated through the transverse mesocolon; it was generally swollen, and in one place, just to the right of the median line, very much softened. On making an incision at this point, there was a gush of pus. At no other point could definite fluctuation be detected. The opening was enlarged sufficiently to allow the introduction of a good-sized rubber tube. Gauze was packed around the tube, and the abdo-

men partly closed. Gallstones were present in the gall-bladder. The patient died on the second day from shock and exhaustion.

This case, presumably primarily of biliary origin, represented, in my opinion, an old infection of the pancreas, with involvement of the islands of Langerhans, as indicated by the presence of sugar in the urine. Incidentally, it may be stated that the presence of sugar in the urine, in the acute cases, is considered of no particular diagnostic value. The final outbreak of subacute inflammation and abscess was probably the result of a fresh infection. It seems reasonable to suppose that an earlier operation would have saved this patient. My procedure, in this case, was more radical than in the first case, in that I made a direct attack upon the pancreas, but I believe it would have been better to approach through the gastrocolic omentum.

CASE 3. Male, 36, mildly alcoholic, had grown rapidly obese in the last two or three years. History of stomach trouble for some time, and one or two attacks of "acute indigestion." The onset and rapid development in this case were absolutely typical. After a few hours' observation there remained no doubt in the minds of the patient's two medical attendants and myself as to the diagnosis. Extreme and agonizing pain, great shock, and persistent vomiting with upper abdominal distention and tenderness, characterized the picture. Considerable doses of morphine were required to relieve the intense suffering. Operation was considered, but the pulse was too rapid and of such poor quality that at no time did it seem in the least degree possible for the patient to withstand anesthesia. He died on the third day.

The autopsy showed that the peritoneal cavity contained a rather small quantity of cloudy fluid. The intestines were everywhere distended and congested although but little exudate was present. The pancreas throughout its entire extent was transformed into a soft, boggy, semi-liquid, greyish-green slough. The gall-bladder was normal, and contained no stones. No other pathological conditions were found. Apropos to the condition of the pancreas found in this case, Turnbull, quoted by Eve, commenting upon reported cases of complete sequestration, is inclined to doubt the possibility of its occurrence, and explains the finding as being due to necrotic peripancreatic fat. He cites two cases where "the house surgeon assured him that the whole pancreas had sloughed through a laparotomy wound, but in both instances, the pancreas was found in its normal position at the autopsy." In spite of the view of Turnbull, I am absolutely sure that the whole pancreas sloughed in this case.

One can scarcely imagine a case more typical of the fulminating variety than this, both clinically and pathologically. Perhaps operation would not have saved the patient; it certainly should have been done.

CASE 4. Female, 37, married, four children. History of irregularly recurring epigastric pains for five years, attacks always came on just after meals, never at night and were usually relieved by vomiting. Morphine had to be given several times. She

was told on different occasions that she was jaundiced and gallstone trouble was the cause assigned.

Twenty-four hours before operation she was seized with extremely violent epigastric pain; there was no vomiting. Morphine was given, but she grew rapidly worse, and was sent to the hospital with the diagnosis of probable acute pancreatitis. At entrance, her temperature was 100.5°, pulse, 120, of poor quality; patient looked very sick; epigastrium was distended and tender. Immediate operation—epigastric incision, brownish fluid in peritoneal cavity; fat necrosis on the omentum and mesentery; pancreas exposed through transverse mesocolon; found to be generally swollen and quite soft. It was punctured in two places near the middle with a steel sound, which was pushed into its substance readily in both directions. Rubber tubes were inserted into each puncture, and two cigarette drains were carried down to the pancreas. No gallstones were present. Following the operation, the patient did well; pulse steadily declined and registered 70 on the fourth day; temperature was normal on the ninth day. There was a profuse discharge of foul-smelling pus throughout the patient's stay in the hospital, a period of 50 days. She was discharged in excellent condition, with a sinus still persisting. This fistula did not heal, and a little more than a month later, she was readmitted. After being in the hospital about a week, a calculus the size of a small pea came away; from that time on, the discharge grew progressively less and about six weeks later the wound was soundly healed. The patient suffered from occasional mild attacks of epigastric pain for six months following the closure of the wound; ten months later, she gave birth to a child. She now states that she has been in absolutely perfect health for a year.

Körte remarks that "The time of healing in all those cases in which there was a discharge of necrotic pieces of the gland or fistula formation was very long—from two to seven and a half months. In only a few of them in which there was such discharge was the healing completed before one and one-half months."

CASE 5. Male, 67, previous history of indefinite stomach trouble, and at least one attack of pain in the upper abdomen requiring morphine for its relief. Aside from this and the general "slow down" of advancing years, his health had usually been very good. Seventy-two hours before I saw the patient, he was taken with sudden, severe epigastric pain and vomiting. Morphine in considerable doses was given. It was thought that he had intestinal obstruction and immediate operation was advised. He declined to follow this advice because of Christian Science leanings and rather compelling Christian Science influences, so it is said. When I saw him, he was suffering greatly from pain in the upper abdomen, tossing about the bed, and often getting up and walking around the room. The abdomen was generally distended, but especially so in the epigastrium, where there was very marked diffuse tenderness, an indefinite sense of deep resistance and muscular spasm. His pulse was 100, of poor quality; temperature slightly subnormal. I was told that his bowels had moved but slightly since the beginning of the attack and that he had vomited frequently. He was taken to the hospital and operated upon at once. When the abdomen was opened, spots of fat necrosis

were quickly evident; there was considerable fluid in the peritoneal cavity; the intestines were greatly distended. The gastrocolic omentum was torn through and the pancreas exposed. It was swollen and soft. I made several punctures with a steel urethral sound, but nothing escaped from the punctures except bloody fluid. Two good-sized rubber tubes and two cigarette drains were placed in contact with the pancreas. No gallstones were present. The abdomen was partly closed.

Following the operation, the distention increased steadily, became most distressing, and could not be relieved by enemas. The patient vomited persistently after the first two days in spite of lavage; on the third day, he became irrational and died deeply stuporous on the seventh day of general peritonitis.

The gravity of this case was recognized in the beginning when the patient had his best chance. If he had seen fit to accept the suggestion of his medical attendants, even though they thought he had ileus, his life might have been saved, especially as the process of disintegration in the pancreas was not found far advanced at operation. Toxemia seemed to be out of all proportion to the local destruction of tissue. The diagnosis did not seem difficult.

There are no new conclusions to formulate as a result of this brief clinical survey. The urgency of the condition has been pointed out in speaking of the pathology, particularly in relation to the rapidity with which necrosis occurs in some cases; the overwhelming toxemia has also been referred to, as a factor of great importance in the same connection; this feature was well exemplified in case three. Even in instances where the onset is less severe and where more or less localized suppuration follows, such serious and probably fatal complications as subphrenic abscess, extensive suppuration in the peripancreatic fat, or general peritonitis may be looked for. The danger of hemorrhage in cases of persistent sinus was not mentioned in the body of the paper, but it is not to be forgotten. In view of all this, it seems unnecessary further to press the point except in closing formally to urge upon the practitioner the great importance of early diagnosis and prompt operation in acute pancreatitis.

I desire to acknowledge my indebtedness to Drs. Croston, Clarke, Donahue and Sullivan of Haverhill, through whose courtesy I was given the opportunity of seeing four of the cases herein reported.

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DISCUSSION OF THE PAPERS OF DRs. WALKER,
CHEEVER, HUBBARD AND DURANT.

DR. P. E. TRUESDALE, Fall River: In regard to perforating gastric and duodenal ulcers, my observations are limited to the experience of ten operative cases with two deaths. It seems to me that what happens to these patients in the first twelve hours is of considerable importance, and vitally affects the outcome. As a rule the patient demands relief, is given a hypodermic of morphia, and is put to bed. There he is quiet. The perforation remains open and fluid continues to escape. On the other hand, if he is left to his own devices, what happens? He does not go to bed. The last case I had gave this history: The patient was in bed and was taken with the pain at three o'clock in the morning, got up and sat in a chair. This gave him a spontaneous closure, stopping, in a measure at least, the escape of the contents of the stomach.

In applying a surgical procedure for this lesion, it seems to me that one should be guided almost entirely by the picture which is presented at the time of operation. Each surgeon must determine for himself what he can do most swiftly and effectively to close the opening and institute adequate drainage. The size of the perforation and the amount of induration surrounding it, makes closure easy or difficult. If the opening is small, the induration not marked, and the bowel lumen ample, a rapid and efficient closure can be made. Gastroenterostomy in the presence of such a picture is indicated for, and when done carries with it an added risk, increased by the presence of an acute lesion. However, if one should find the perforation to be $\frac{1}{2}$ to 1 cm. in diameter, and the center of an indurated mass which has already encroached considerably upon the bowel lumen, the problem confronted is more difficult. Sutures are difficult to apply; they are often left under considerable tension, and when they cut out the opening may thus be made larger than it was originally. Final suture then should not be under tension. When the infolded mass is bulky and greatly encroaches upon the bowel lumen, gastroenterostomy should be done, even at the expense of an extra half hour. The wisdom of doing gastroenterostomy in every case is doubtful.

It is a notable fact, however, that occasionally the utterances of a master surgeon have led an average surgeon into deep water. For example, Dr. Deaver advocates gastroenterostomy in addition to closing the perforation. He has reported a series of thirty-two cases with one death, and he almost invariably does gastroenterostomy. He says that ten or twelve minutes more are utilized in doing gastroenterostomy. All this must be taken into account when considering the chances of recovery for the patient. Therefore, it seems to me that when you are in doubt about doing gastroenterostomy, don't do the gastroenterostomy.

DR. D. F. JONES, Boston: I will add just one word in regard to Dr. Cheever's paper concerning perforating ulcer. Dr. Cheever gave the impression that the reason he cured his 32 cases was because he had done a gastroenterostomy. He neglected to say that all of the cases which recovered had been operated on in twelve or fourteen hours after they were diagnosed. This is the whole point of the paper, and not his gastroenterostomy.

I wish to mention a case in my experience where there was a duodenal fistula, probably due to necrotic abscess, with sloughing of the duodenal wall, and a discharge of all the stomach contents through the duodenal fistula. The man went down to the lowest possible point, and when he was about to die we decided to do a jejunostomy. That was done and the man was fed by a tube through the jejunum. This kept the wound dry, and gave the wound a chance to heal. We were able to feed him by the jejunostomy for some three weeks. At the end of that time the fistula got along perfectly well.

In a number of reported cases of injury to the jejunum or duodenum, gastroenterostomy was done. It seems to me that a jejunostomy is the more satisfactory operation, in that the stomach contents do not have to be pushed through the injured intestine at all, but you can feed your patient by jejunostomy.

In regard to Dr. Durant's paper, I was sure that he meant to cover the whole field, and I therefore looked up the cases of pancreatitis at the Massachusetts General Hospital to see how frequently they occur. I found that in ten years at the Massachusetts General Hospital, that is, from 1904 to 1915, there were but 28 cases operated on surgically. Those cases were divided as follows:—acute, 10 with six deaths, or 60%; acute hemorrhagic pancreatitis, five cases, five deaths; chronic, 12 cases with three deaths, 25%. There was one case of gangrenous pancreatitis and one case of abscess of the pancreas, both of which recovered.

In regard to gall-stones in connection with pancreatitis, I think they are almost always present, although in the cases at the hospital there were but six cases of gall-stones, at least where they were noted at the time of operation. There was one case of ulcer of the stomach in connection with the pancreatitis.

Another interesting fact is that in the 28 cases, seven of them gave a history of previous attacks of pain, and in six of the seven cases there were no gall-stones present to give the symptoms. You will find, I think, in a very large percentage of cases of pancreatitis, attacks of pain which cannot possibly, I believe, be distinguished from gall-stones. The diagnosis, as Dr. Durant says, is very difficult. If one could see them more frequently one could undoubtedly make a diagnosis much more often.

While it may be of some importance to operate on these cases early, it is a fact that it depends greatly upon the conditions found at the

operation,—that is, the severity of the onset, as to whether the patient gets well or not. It also depends on the amount of blood or fluid in the abdominal cavity. As you know, there is the apoplexy of the pancreas in which patients die immediately, are found dead on the street. Those cases we do not see surgically because they do not get to the hospital alive. Then we have acute pancreatitis, in which there is no blood or bloody fluid, but in which there is straw-colored fluid. Of those cases, 40% recovered. In chronic pancreatitis cases there is no fluid whatever, simply a thickening of the pancreas. Practically all of these cases got well. Those cases are usually found in the course of other operations, usually operations for gall-stones. In the course of the gall-stone operation, the surgeon puts his hand down and examines the pancreas. It is found hardened and thickened. That is called chronic pancreatitis. Dr. J. H. Wright says that there is no condition like this found when patients come to autopsy. I do not know what becomes of the thickening; it is certainly there at the time of operation, but Dr. Wright says it is never there at autopsy.

In regard to Dr. Hubbard's paper, I feel that there can be no question that he is right in saying that whenever a diagnosis of gall-stones is made, the patient should be operated on. I think we are all coming to see that more and more.

DR. F. B. LUND, Boston: I have very little to add, but I want to say one or two things. Dr. Walker's paper shows that there has been of recent years a great improvement in the matter of early diagnosis, and in consequence, a great improvement in mortality. It is very encouraging. The first successful operation for perforation of the stomach on this continent was performed by Dr. Atherton of Fredericton, New Brunswick, who was one of the earliest house officers at the Boston City Hospital. Perforations of the gall-bladder have been about as severe and more fatal in my experience than perforations of the stomach.

Dr. Hubbard's paper brings out the importance of early operation in gall-stones. We used to wait for an interval in appendicitis, but we do not do that any more. We also used to wait for an interval in gall-stones, but I have found that operations on acute gall-bladders, even gangrenous ones, often give as good result as waiting for an interval. While waiting, the trouble often gets worse, and I once saw pancreatitis result.

In regard to Dr. Durant's remarks, I have found jejunostomy very valuable in saving life through enabling a patient to be fed after operation for perforation. I had a patient recover who had a perforation operated twenty-four hours after it took place. The operation was followed by subphrenic abscess, and then by empyema, requiring operation, which weakened him so that I had to do a jejunostomy to feed him. After his strength had been restored by this, a gastroenterostomy was done, and he made

a perfect recovery. We must never forget the possibilities of jejunostomy in these cases. Dr. Durant's paper covered the ground very thoroughly. I think there is a good deal of truth in the German author's statement that he quoted, who stated that, while there is a good deal of sloughing, which is thought to be sloughing of the pancreas, it is really the peripancreatic fat and not the pancreas that is concerned. I read a paper on this subject a good many years ago (fifteen, I think), and in one of my cases which came to autopsy there was a good deal of sloughing through the wound, which we thought came from the pancreas. At death a normal pancreas was found, so it looked as if this tissue must be peripancreatic fat. I am sure that sometimes a portion of the pancreas sloughs, but I think a great deal thought to be pancreas is merely peripancreatic fat.

DR. AGNES C. VIETOR, Boston: I would like to ask whether there are any statistics of the condition of the gall-bladder in acute pancreatitis, other than those relating to gall-stones.

Since, according to present evidence, it is the infection of the gall-bladder that is fundamental in the production of gall-stones, would it not be well for those of us who may meet cases of acute pancreatitis, to note not merely the presence or absence of gall-stones, but also the presence or absence of non-calculus cholecystitis?

DR. I. J. WALKER, Boston: It is surprising to learn the number of these patients who have been treated for stomach trouble, indigestion and various things like that, and have, perhaps, been rather indifferently treated. It seems to me that the important part in the prevention of these cases of perforation is to treat conscientiously the chronic ulcer of the stomach, or duodenum.

And again, Dr. Truesdale spoke of these patients wanting relief. That is, of course, perfectly true. The most of them need morphia, but they should not be left to stay in the house, and let things happen there. They should be sent to the hospital at the start, while the chance of recovery from operation is good.

DR. C. E. DURANT, Haverhill: Dr. Lund's statement in reference to the condition of the pancreas in his case fully confirms the view of Turnbull which I quoted. In my case, however—probably an exceptional one,—there was no question of practically complete sphacelation, for the pancreas was most carefully and thoroughly examined. The degree of destruction in so short a time was astonishing.

In reply to the question as to the frequency of non-calculus cholecystitis in association with pancreatitis, I am not able to make any statement based on statistical information. Furthermore, I am not aware of any reported cases where bacteriological investigations have been made looking towards the determination of this phase of the question. It is surprising that Dr. Jones, in the Massachusetts General Hospital cases, found fat necrosis reported in but 40%; I think this rather unusual, for Mikulicz, Körte,

and others report its presence with much greater frequency.

In operating in gall-stone cases, I have never been certain of my ability to make a diagnosis of chronic pancreatitis by palpation, and therefore, I was glad to hear Dr. Jones say that Dr. Wright feels that there is no such thing as chronic pancreatitis determinable by the operating surgeon.

Original Articles.

A PROPER CLASSIFICATION OF BORDERLINE MENTAL CASES AMONGST OFFENDERS.

BY V. V. ANDERSON, M.D., BOSTON.
Municipal Courts.

FOREWORD.

The problems of our Courts, even more than those of the Psychiatrist, are *failures of mental adaptation*.

A great host of repeated offenders,—recidivists who seem to be able properly to adjust themselves to Society's customs and institutions,—have as a fundamental basis of their lack of adaptability a mentality that deviates from normal, and would seem, if looked at purely from the social point of view, to be all of them defectives. They have been so termed by many observers.

Certain recent, purporting to be scientific, studies indicate the proportion of mental defectives among court cases as 89%, a condition wholly out of keeping with the common sense experience of judges, probation officers and others who have been dealing with delinquents. If such a universal cause could be discovered, why then a solution of the crime problem would be simple indeed; but such reports are not taken seriously inasmuch as the methods used were open to such grave criticism as to render the findings, for practical purposes, useless. Suffice it that the most reliable work done indicates a lower percentage of mental defectives among offenders in general, ranging from ten to thirty per cent. But what of the remaining seventy to ninety per cent? It has been on this particular problem that most of our interest has been centered, and this paper, while principally in the interest of a proper classification of borderline cases, forms an introduction to a series of contributions which will be made, calling attention to two very important types that have been overlooked.

One of the most urgent problems in the proper development of medical expert work in our criminal courts, is a workable classification of those borderline mental cases which belong neither to the feeble-minded nor the insane, and are yet clearly abnormal in mentality.

This paper will discuss the plan we have adopted of classifying these border line mental types in the Municipal Criminal Court of Boston. No reference is made to the various psychoses, to those suffering from alcoholic deterioration, to the epilepsies, etc., for obvious reasons. Our discussion simply has to do with a borderline group of individuals found amongst delinquents in general, who apparently have been very difficult to classify and about whom a most confusing terminology exists. They have been a source of much trouble to social workers, to criminal courts, and to various institutions. They seem unable to profit properly by any sort of treatment, and are suspected by those intimately associated with them of being "crazy," "born criminals," and what not. A more scientific terminology popularly applied is "moral imbecile," "moral insanity," "emotional defective," "defective delinquent," etc.

The terms being apparently used interchangeably, one physician may classify an individual as a moral defective, while another will diagnose him as a defective delinquent, and still another may call him an emotional defective, and so on. All the while the examiner may have only a vague conception of what he really means by his terminology.

Now for practical use in the study and treatment of offenders a classification should be definite, workable and based on demonstrable facts, rather than loose generalizations. Nothing is gained by categorizing individuals unless our classification conveys such well defined knowledge of types as will serve a practical end.

The term "defective delinquent" is being used by different examiners to define markedly divergent types. To some it means delinquent individuals who as a result of mental examination are found to be defective in mentality. Then the logical classification, from a mental standpoint, would be mental defectives. But other examiners are apparently using the term "defective delinquent" to cover a class of individuals who as a result of careful mental examination give no evidence of mental defect; but their conduct is abnormal, they have certain character defects, and they are anti-social,—they, forsooth, must be defective anyway, so why not call them defective delinquents? It is an easy way out of the difficulty.

Then there is a tendency to use the term to fit otherwise normal individuals who have criminal tendencies, presupposing that repeated criminality is proof of a defective mentality; a correlation wholly unjustified, unless we use the term defective as a social classification, and not as a mental—in other words, unless we are going to make "defective" refer simply to conduct that is abnormal and not in keeping with social standards, rather than back to its definite cause in a particular type of mentality.

Altogether we have presented to us a rather loose and confusing symptomatology connected with the term "defective delinquent," and when

the state is prepared to have these individuals committed to separate institutions, the difficulties of definition one fears will be insurmountable.

It would hardly seem necessary to discuss seriously such a classification as moral imbecile or moral insanity, did it not persistently crop up in the literature, and did not physicians now and then make use of such a diagnosis. To justify this classification one would have to presuppose the existence of a special moral faculty, an ethical department separate and distinct from the rest of the mental life; a presupposition wholly unjustified in the present light of scientific methods of studying the human mind.

In fact, we have come to realize that our moral judgments are inextricably mixed up with social judgments; that general intelligence, learning, experience, etc., are brought into play in the exercise of every moral judgment; that millions of brain processes are involved in every thought and act, and conduct is an expression of the whole machinery at work; that there is no ground for the presupposition of a separate sense that sits in judgment, approving or disapproving of our actions. In short, a mentality incapable of forming moral judgments is likewise incapable of forming normal judgments along other lines, and is (*ipso facto*) a defective mentality, and is demonstrable by a thorough examination of general intelligence, judgment, reasoning capacity, etc. These are *mental defectives*, and not moral imbeciles.

But the term is more frequently used to refer to a type of distinctly anti-social individuals who are not defective in mentality and are not lacking in capacity to form moral judgments, nor are they devoid of moral feelings, but are hampered with a constitutional instability of their nervous system which renders them very impulsive, vehement, inhibitionless and emotional; in other words, they are easily unbalanced, and thus especially liable to serious social difficulties in a complex environment. These are *psychopaths*, and not moral imbeciles.

A careful study of other supposed cases of moral imbecility brings to light victims of a vicious social environment, early immoral teachings and practices, individuals suffering from mental conflict, etc., etc. Healy has well said that the great probable sources of difference of opinions as to the existence of such a type is in the extensive theorizing and the lack of careful statement, either of definition, or of the results of survey of all investigable elements of mental life.

Certainly if in all cases of so-called "moral imbecility" the examiner would make a thorough study and record of the various mental abilities and disabilities of his patient, the self-contradictions so frequently found in the literature would hardly be possible. For our own part we find no need for the term as we have not yet run across a single case of moral imbecility or moral insanity.

But what serious objections are there to using the term "defective delinquent"? There are none, if by it we mean those delinquent individuals who are defectives. In other words, if we draw the line somewhere, restricting it to the mental defectives, making the term workable, and not allow it to cover several divergent types; else those of us who are having to do the practical work of classifying mental cases in courts and penal institutions will find the anomalous situation of a group of defective delinquents being composed of some offenders who are clearly *mental defectives*, some who are not defectives but are *psychopaths*, and others who are neither defective nor psychopathic in mentality, who are not pathological but psychological types,—the *mental delinquents*. Three distinct types, requiring entirely different treatment and offering a wholly different kind of prognosis from the standpoint of reformation. In other words, we will find that the term "defective delinquent" is a social classification and not a mental, and is being used to refer to acts, anti-social in character, which from the mental side have their basis in wholly different types of mentality.

As previously stated, there is no objection to calling those amongst our courts and penal cases, that are defective in mentality, "defective delinquents," nor is there any objection to calling those that are insane, "insane delinquents," and those that are epileptic, "epileptic delinquents," if we do not mean to imply that they belong to mental types different from the mental defectives, the insane and the epileptic. (But what is the use of it all? The very fact that one mental defective has been caught in his anti-social conduct, and another has escaped, is not sufficient grounds for a difference in mental classification of the two.)

If we do imply that the defective delinquent is a different type from the mental defective, then on what logical basis do we use the term as a mental classification,—for how can they be defectives and still not mental defectives? A contradiction. The term defective used with reference to the mind of an individual should carry with it a lack of normal mental development and should have a very definite meaning to us. This condition is demonstrable by exact methods of measurement. The term defective, used with reference to the social aspect of one's conduct, may as well be applied to those with a mentality that is disordered, as those with a mentality that is defective, and from such a point of view the majority of the fifty-odd thousand delinquents coming before our courts in one year could be classified as defective delinquents. The fact is that the term is being used constantly to refer to a group of individuals who, when their abilities and disabilities have been thoroughly and scientifically studied, give no evidence of mental defect, but are rated as adult in mental development. They are called defective delinquents, however, because they possess certain

personality maladjustments, certain character deviations, are distinguished by an anti-social line of conduct, are unreliable, changeable, impulsive, erratic, lacking in inhibitions, restless, at times showing great motor activity, becoming violent, and practically insane, under the influence of emotion, alcohol, drugs, etc. While under detention they clear up and give no evidence of psychoses or mental defect, only to have another outbreak when things go wrong in their environment. These are the *psychopaths*, as previously hinted at, and should not be confused with defectives. In institutions they give far more trouble than defectives, require a great deal more discipline, and seem little improved by any form of treatment. They are often absolutely unmanageable, and from the standpoint of our courts they require an entirely different disposition from the defectives, and must be clearly differentiated. One often finds enlarged thyroids; several cases seen by the writer had both ovaries removed and had active changes in character dating from this incident, pointing, it seems, to the possibility of changes in certain internal secretions serving as a basis for this condition of nervous and mental instability. We must consider these individuals in the light of adjustment of their personality, rather than in terms of development of general intelligence, as we do the defectives; and realize that their anti-social conduct is due less to their stupidity, less to their lack of understanding of the demands of a normal social organization and inability to foresee the consequences of their acts, than it is to a disturbance in the coordination of the proper nervous mechanism; a poorly balanced mentality, rather than one that is defective. To call them "defective delinquents" confuses the issue, in that it emphasizes the social aspect, and is simply a social interpretation of their conduct; it does not point to the nervous and mental instability, rather than defect, that is the cause; furthermore, it allies them with the mental defectives, a type wholly different in mental makeup and treatment. The only logical classification that is free from confusion and serious criticism is the term "psychopath." This term fits so admirably the characteristics of this group, suggesting a relationship to the psychoneuroses and psychoses, rather than to feeble-mindedness, that we have used it as a definite classification of this type from the first.

It might be well to mention that among several hundred offenders examined we have found almost as many "psychopaths" as "mental defectives," suggesting that this condition may be of as serious importance as a basis of criminality as mental deficiency, and it may be that it explains the wide divergence in reports as to the percentage of defectives among criminals; some investigators claiming as high as 89%, others as low as 20%. The latter is possibly nearer the truth than the former, inasmuch as 89% undoubtedly represents the entire field of

this borderline group about which we are speaking, and thus includes not only the mental defectives but the psychopaths and mental delinquents as well.

Finally, after we have accounted for the mental defectives and the psychopaths among the recidivists, there still remains a very large group of repeated offenders who are not normal in mentality. Exact mental measurements fail to show any defect or sub-normality in mental development,—they are not defective. Carefully given psychiatric tests show no evidence of a psychosis: personality studies do not reveal any of the character makeup, temperamental peculiarities and disposition of the psychopath. They are not impulsive, poorly balanced and neurotic individuals; they are not lacking in inhibitions and liable to great emotional extremes, violent outbursts of temper, etc., as are the psychopaths, who are often quite conscientious and sincere and try repeatedly to do better, but fail because of their very marked nervous and mental instability. On the contrary, this particular type, the *mental delinquents*, have a fair amount of intelligence (depending upon the walks of life from which they come), a stable mentality, are cool and calculating, deliberate, planning out situations in advance, indolent and superficial, very selfish, egoistic, heartless, and even cruel at times. In them the self-preservation instincts are undisciplined and the nobler sentiments are lacking. They are strongly individualistic. In short, they possess a mentality that differs from the average or normal in that it is particularly non-social. It expresses itself as deviating purely along delinquent lines, and for this reason we have called them "mental delinquents," rather than defective delinquents, inasmuch as their mental condition is to be explained, as we shall show later, purely on psychological rather than pathological grounds; is acquired rather than innate. Their reformability is a well known fact, and thus their anti-social tendencies are not based on a lack of capacity for conduct in keeping with normal standards. These individuals have not had at the proper stage of their development those socializing influences which produce altruistic tendencies that discipline the instincts and emotions. The dominant note in their make-up is a non-moral and purely egoistic attitude, which tends to become more marked as character is formed around the unrestrained exercise of their primitive tendencies; tendencies which in themselves are normal, and present at certain stages of every individual's development, but which are checked when powerful inhibitions are laid down through fear of punishment, reward, expectation of social praise or blame, etc., which later on are to be reinforced through the growth of the higher and nobler sentiments that are of so much importance in the formation of character and the direction of conduct of individuals and societies.

We must remember in this connection that

character is not something born with an individual, but is built up on the native basis of disposition and temperament in the course of one's life and is the sum of acquired tendencies. There can be but little doubt that the sentiments constitute a large part of what is properly called character, and the organization of these we will remember, in the developing mind, is determined by the course of experience. Our judgments of value and of merit are rooted in our sentiments, and our moral principles have the same source, for they are formed by our judgments of moral value. Thus we can easily conceive how, if the raw material of virtue and vice are the same, and desires which in themselves abstracted from their relation to the higher self are neither moral nor immoral but simply non-moral, that the fundamental problem in a man's morality is his socialization by society. Now several things may take place to prevent this.

He may be so defective in mentality as to be unable to measure up to the standards and laws of a normal social organization, and thus constitutionally incapable of profiting properly by experience. In this case he is not a criminal but a "mental defective."

He may be so unstable and poorly balanced in mentality as to be continually liable to impulsive conduct, and thus incompletely socialized, as are the "*psychopaths*."

Or, as a result of acquired habits of thought and action, initiated during the formative periods of childhood and adolescence, he may have developed a character that is distorted and delinquent in its tendencies, and as a result he may be, for practical purposes, a "criminal" in his makeup. His environment may have focused upon him at some particularly weak moment a host of powerful influences, easily calculated to break down his weak inhibitions; especially is this true if the influences were exercised in the immediate service of desires springing directly from some one or other of the primary instinctive impulses. Now we have only to remember that habits are formed only in the service of instincts, and once initiated, how around them the entire character may be developed, for an acquired mode of activity becomes by repetition habitual, and the more frequently it is repeated the more powerful becomes the habit as a source of impulse, or motive power. In this way it is not difficult to understand how under particularly unfavorable circumstances the "*mental delinquent*," or, in popular speech, the "*criminal type*" develops.

I submit then that among our borderline mental cases we have three distinct types, recognizable as definite entities, the *mental defectives*, the *psychopaths* and the *mental delinquents*, each creating very definite social problems; each having a very definite constitutional makeup and requiring for proper treatment and solution an entirely different line of handling, as we

shall show in three papers that are to follow, entitled:—

- (1) "Mental Findings in a Group of Psychopaths."
- (2) "Mental Findings in a Group of Mental Delinquents."
- (3) "A Comparative Study of the Mental Defective, Psychopath and Mental Delinquent."

In these three contributions it is our desire to call especial attention to a series of thorough-going personality studies by which we were enabled to arrive at an explanation of the makeup of these distinct types.

These three definite groups constitute the very backbone of recidivism, and the institution of proper remedial measures, fitting the requirements of each particular group, would enable society to make immense strides in handling the crime problem.



THE RELATION BETWEEN THE GENETIC FACTORS AND THE AGE OF ONSET IN ONE HUNDRED AND FIFTY SEVEN CASES OF HEREDITARY EPILEPSY.*

BY D. A. THOM, M.D., PALMER, MASS.

FROM the records of the Monson State Hospital one hundred and fifty-seven (157) cases of epilepsy, each presenting in the family history one or more of the five mental defects into which I have arbitrarily divided heredity, viz., Epilepsy, Alcohol, Insanity, Feeble-mindedness, and Migraine, were studied in view of determining the relation between the hereditary factor in the forebears and the age of onset of the epilepsy in the offspring; but as the work progressed other problems were presented that could not pass unnoticed and they will be considered as they occur.

Of the total number of cases used for this study, eighty-two (82) were females and seventy-five (75) were males. One hundred and twenty-six cases had direct heredity (that derived from parents or grandparents), and thirty-one cases had collateral heredity (that shown in members of the family other than parents or grandparents). There were two hundred and ninety-three (293) heredity defects in the one hundred and fifty-seven cases, occasionally one member of the family having more than one defect, and in other instances two or more relatives being defective.

Table I. shows the distribution of the five genetic factors among the total of two hundred and ninety-three taints recorded.

* Read at the Triennial Meeting of the Harvard Medical Alumni Association at the Boston City Hospital on May 20, 1915.

TABLE I.—HEREDITY—ONE HUNDRED AND FIFTY-SEVEN CASES OF EPILEPSY.

	DIRECT (126).							COLLATERAL (31).										
	Mother.	Father.	Mat. G. Mother.	Pat. G. Mother.	Mat. G. Father.	Pat. G. Father.	Total.	Sister.	Brother.	Pat. Uncle.	Mat. Uncle.	Cousin.	Uncle.	Aunt.	G. Father.	G. Mother.	Unknown.	Total.
Epilepsy	15	14	9	12	33	1	50	10	17	4	5	14	3	1	1	1	1	77
Insanity	4	9	12	4	12	4	24	—	4	1	1	1	1	1	1	1	1	1
Feeble-mindedness	9	4	—	4	4	3	13	—	1	1	1	1	1	1	1	1	1	2
Alcohol	9	12	—	—	—	—	58	—	—	—	—	—	—	—	—	—	—	1
Migraine	25	7	1	1	—	—	34	1	—	—	—	—	—	1	—	—	—	2
	62	76	12	5	10	14	179	25	22	10	7	10	7	21	5	5	2	114

Table II, is a record of the number of times that each defect was found alone, the different combinations that were formed by a grouping of two or more factors, and the number of cases in each group.

TABLE II.—SUMMARY.

ONE DEFECT IN FAMILY HISTORY.

	Cases.	Per Cent.
Epilepsy alone.....	44	28
Alcohol alone.....	23	14.6
Insanity alone.....	17	10.8
Migraine alone.....	9	5.7
Feeble-mindedness alone.....	3	2
	96	61.1

TWO DEFECTS IN FAMILY HISTORY.

	Cases.	Per Cent.
Epilepsy plus alcohol.....	10	6.4
Epilepsy plus insanity.....	7	4.5
Epilepsy plus migraine.....	11	7.0
Epilepsy plus feeble-mindedness.....	2	1.3
Insanity plus alcohol.....	4	2.7
Insanity plus migraine.....	7	4.5
Insanity plus feeble-mindedness.....	0	—
Feeble-mindedness plus migraine.....	2	1.3
Feeble-mindedness plus alcohol.....	1	.6
Alcohol plus migraine.....	3	1.9
	47	30.2

THREE DEFECTS IN FAMILY HISTORY.

	Cases.	Per Cent.
Epilepsy plus alcohol plus insanity.....	5	3.2
Epilepsy plus feeble-mindedness plus insanity	3	1.9
Epilepsy plus alcohol plus feeble-mindedness	1	.6
Epilepsy plus migraine plus alcohol.....	1	.6
Epilepsy plus feeble-mindedness plus migraine	2	1.3

FOUR DEFECTS IN FAMILY HISTORY.

	Cases.	Per Cent.
Epilepsy and alcohol and feeble-mindedness and migraine.....	2	1.3
	14	8.9

Ninety-six (61%) of the cases gave a family history of but one defect; forty-seven (30%) had two defects and the remaining fourteen cases (9%) had three and four defects.

Table III is but a further summary of Table II which brings out more clearly the total number of times that each one of the five genetic factors was met, either alone or in combination with one or more of the other factors, and also whether the heredity was direct or collateral.

TABLE III.—SUMMARY OF TABLE II.

	Alone.	Combined with Other Traits.	Total.	Direct Heredity.	Collateral.
Epilepsy	44	44	88	49	39
Alcohol	23	36	59	58	1
Insanity	17	26	43	24	19
Feeble-mindedness	3	13	16	13	3
Migraine	9	27	36	34	2
				23%	

It will now be seen that from the entire one hundred and fifty-seven cases epilepsy was met either alone or in combination eighty-eight times (or in 57% of the cases), alcohol fifty-nine times (38%), insanity forty-three times (27%), migraine thirty-seven times (24%), and feeble-mindedness sixteen times or 10% of the total number of cases. In 95% of the cases where alcohol, migraine or feeble-mindedness was the defective factor the heredity was direct, while only 56% of epilepsy and insanity came from the forebears.

Table IV represents the distribution of the hereditary factors in those ninety-six cases where there was but one defect. It goes further and shows the frequency with which each defect was met in the forebears and the total number of times in other relatives; also whether the heredity was direct or collateral. In seventy of the ninety-six cases, or 73%, the heredity was direct, in the remaining twenty-six cases collateral; in twenty-five of this latter group the mental defect was either epilepsy or alcohol.

TABLE IV.—NINETY-SIX CASES OF EPILEPSY SHOWING BUT ONE OF FIVE DEFECTS IN ANCESTRY.

	Mother,	Father,	Parents,	Mat. G. Mother,	Mat. G. Father,	Pat. G. Mother,	Pat. G. Father,	Total Cases Direct Heredity,	Total Cases Colateral Heredity,	Total Cases Direct Colateral
Epilepsy	7	9	2	3	1	6	4	12	16	44
Alcohol	3	15	12	0	1	0	12	33	0	123
Insanity	3	3	1	0	1	0	0	3	9	17
Migraine	6	2	0	0	0	0	1	9	0	9
Feeble-mindedness	2	0	0	0	0	0	0	2	1	3

By referring again to Table II it will be noted that there were forty-seven cases showing two mental defects in the family history and that they were divided into nine distinct groupings. Epilepsy was combined with each of the other four factors in a total of thirty cases (64% of the group). Epilepsy plus alcohol, and epilepsy plus migraine were the two most common combinations; into these two groups fell twenty-one of the thirty cases. Mother epileptic and father alcoholic, or grandparent migrainous and mother epileptic are two groupings which are most frequently met.

There are still two other groups to be mentioned in passing, the first containing twelve cases and manifesting three defects in the family history, the other group consisting of only two cases and presenting *four* out of the possible five defects.

Table V gives these fourteen cases in detail and it will be observed that in several cases the same relative has more than one defect, as—mother epileptic and migrainous, father insane and alcoholie. This was true in only a few of the other cases.

From the above table it will be noted that epilepsy as a defective factor occurred in the entire fourteen cases, alcohol in nine cases, insanity and feeble-mindedness in eight cases, and migraine in five cases.

The preceding tables, with the explanatory notes, show in a general way the distribution of the five genetic factors and the frequency with which each one was met, alone and in combination.

I would call your attention to twenty-one cases where one of the grandparents was epileptic. In this group we have the histories of three consecutive generations to study. The first (grandparents) and the third (patient) we know to be epileptic, while the second genera-

TABLE V.—CASES SHOWING MORE THAN TWO HEREDITARY DEFECTS IN ANCESTRY.

No.	Case.	Sex.	Age at Onset	Epilepsy.	Alcohol.	Migraine.	Feeble-mindedness.	Insanity.
3	1976	F.	41 yrs.	Uncle Cousin	Father			Father
5	1921	F.	?	Uncle	P. G. Father			P. G. Father
13	1651	F.	10 yrs.	Sister	Father			Cousin
14	1652	F.	12 yrs.	Sister	Father			Cousin
140	2626	F.	2 yrs.	Mother	Father			M. Uncle
11	1562	M.	1. yr.	Brother Sister			Mother Father	M. G. Mother P. G. Father
10	784	F.	7 yrs.	Brother Sister			Mother Father	M. G. Mother P. G. Father
133	2700	M.	41 yrs.	Uncle			Father	P. G. Mother
9	682	F.	1 yr.	Brother M. G. Mother		Mother	Uncle	
80	2232	M.	3 mos.	Cousin		Mother	P. Uncle	
107	2402	F.	2 yrs.	Brother	Father		Mother	
97	2115	M.	26 yrs.	Brother	Father	Father		
121	2824	F.	9 yrs.	Mother M. G. Mother	Father	Mother	Mother Father	
147	2684	M.	14 yrs.	P. G. Mother	Father	Mother	M. Uncle Brother	

tion (representing the parents of patient) gave the following history: In seven cases the epilepsy continued through the three generations; in three instances it was replaced by migraine in the second generation only to make its appearance in its old form in the patient; in the remaining eleven cases there was nothing unusual noted with reference to the mental instability of the individual. This latter group forms a very interesting series of cases inasmuch as each case represented the offspring of an epileptic parent and the parent of an epileptic offspring, yet was without any mental symptoms.

This is a representative group of recessive epilepsy showing that defective germ-plasm may lie dormant for a generation awaiting some environmental condition to bring it to the surface.

In reviewing the literature on the subject of epilepsy and heredity I found that the age of the onset and its relation to the defects which were inherited from the forebears received but little attention. Donald Gregg of Brookline, Mass., read an excellent contribution to the subject of the potency of hereditary factors before the Section on Nervous and Mental Diseases at the meeting of the American Medical Association, June, 1914, the article appearing in the *Journal of the American Medical Association*, November 28, 1914. In his second conclusion he states, "If the age at which symptoms occur among psychoneurotic individuals may be considered an index of the potency of the essential factor at work," etc. Gregg apparently felt some hesitancy in stating that there was a definite relation between the onset age and the potency of the genetic factor. I also wish to be cautious about drawing conclusions that are too dogmatic, for it will doubtless be necessary to make numerous alterations in our present data and study a vast amount more material before any definite conclusions can be drawn from a subject so broad.

I have computed, under several of the different divisions into which I have divided this series, the age at which the epilepsy was first noted. (That usually means the age of the first convolution).

The first group considered was that made up of the ninety-six cases showing but one of the five hereditary defects.

HEREDITARY FACTOR.

	Average Age at Onset.
Feeble-mindedness	6.2 years
Migraine	8.5 "
Epilepsy	11.1 "
Alcohol	13.7 "
Insanity	16.0 "

From this same group the average age at onset of the epilepsy was determined with reference to which one of the parents, or whether both had the defect, but without regard to what the defect might be.

ANY ONE OF THE FIVE DEFECTS.

	Average Age at Onset.
Mother	9.8 years
Father	12.1 "
Both parents	5.0 "

The next computation takes into consideration the number of defects inherited by the patient (Table II) and concludes the entire series.

NUMBER OF DEFECTS.

	Average Age at Onset.
One defect	11.1 years
Two defects	11.3 "
Three defects	11.6 "
Four defects	6.5 "

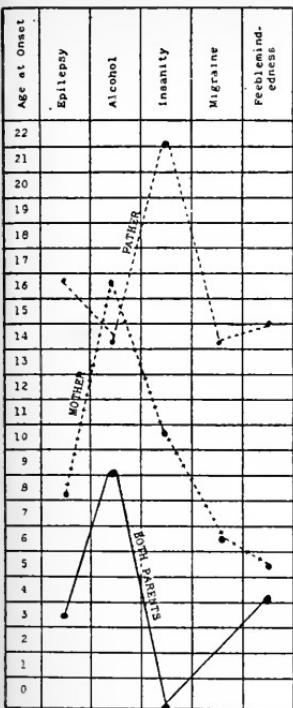
The age at onset with reference as to whether the heredity was direct or collateral was also computed, showing that those cases in the former class had an earlier onset than those in the latter.

Epilepsy	Direct	9.4 years
"	Collateral	13.0 "
Insanity	Direct	10.6 "
"	Collateral	14.6 "
Feeble-mindedness	Direct	7.5 "
"	Collateral	16.0 "

The average age of the onset of the epilepsy when computed with reference to the hereditary factor alone fluctuated between 6.2 years for feeble-mindedness to 16 years for insanity, while when considered with reference as to which parent or whether both parents were defective, but with regard for the particular defect, the age at onset varied from 5 years where both parents were defective to 12.1 years where the father transmitted the defect.

I have constructed a chart to represent graphically the difference in the age of the onset of the epilepsy when both the defect and the parent possessing it are considered. The upper curve is the father's, the middle curve the mother's, and the lower curve represents the situation where both parents are defective. The outside vertical line indicates the onset age, while the five genetic factors are placed on the horizontal line above.

Granting for the present that the data so far submitted are inadequate to substantiate the theory that there is a definite relation between the age at onset of the epilepsy and the potency of the factor, but rather leads us to believe that the potency of the factor is dependent more upon its source, that is, whether maternal or paternal, and being decidedly more "virulent," if I may use the term, in those cases where both parents have the same defect, yet, I am still inclined to believe that between the age of onset and the hereditary factor there is a relation which depends, first, upon the potency of the factor, and second, upon the environmental conditions. How definite this relation may be one can say only after studying the cases sufficient in number and

SUMMARY OF TABLE VI.
AGE OF ONSET OF EPILEPSY IN OFFSPRING.

HEREDITARY FACTOR.	BOTH PARENTS.		MOTHER.	
	3.5	CONGENITAL	3.5	22.0
Epilepsy.....	10.6	No cases	16.8	14.1
Insanity.....	6.2	1.0	5.3	15.0
Migraine.....	16.6	9.0	16.6	14.1
Feeble-mindedness.....				
Alcohol.....				

the onset was at an earlier date than in those cases where only one parent was defective.

5. There was practically no difference between the average age at onset in those cases inheriting two or three defects and in those cases where the family history revealed but one.

6. Those cases with direct heredity averaged an earlier onset than those cases with collateral heredity.

7. The average age at onset in one hundred and fifty-seven cases with heredity was a little over eight years younger than two hundred and five cases computed without reference to heredity.

8. Thirty-nine percent of the entire group had more than one hereditary defect in the family history.

9. Eighty percent of the cases had direct heredity, and fifty-eight percent of the entire group gave a history of epilepsy in some member of the family.

10. Eleven cases, the offspring of epileptic parents and the parents of an epileptic offspring were free from mental defects themselves. I shall not discuss what I believe the errors to be in the above suggestions, some of them which are apparently obvious may prove, on further investigation, that they approach much nearer the actual conditions than we have heretofore believed.



STUDY OF A CASE OF EPIDEMIC TYPHUS FEVER IMPORTED INTO CENTRAL NEW YORK.

By I. H. LEVY, M.D., SYRACUSE, N. Y.,

AND

J. L. KANTOR, M.D., SYRACUSE, N. Y.

On the evening of April 12, 1915, there was admitted to the Hospital of the Good Shepherd, Syracuse, a Macedonian immigrant, 42 years old, suffering from fever and a profuse rash. The next day he was transferred to the City Hospital, where we had the opportunity of following him to convalescence. According to the history subsequently obtained, he had been recently arrived in this country, had been well until April 7, when he began to experience malaise and loss of appetite. Two days later (April 9) he suddenly came down with a chill, severe headache, fever, and a dry cough. There was no expectoration or vomiting, and no rash was observed by the patient or his friends. On his admission to the hospital on the fourth day of his illness, he complained of frontal headache and of myalgic pains, especially in both thighs. There was no pediculosis capitis, pubis, or vestimenti.

Physical examination revealed the following:

The patient was a well built, very dark skinned, middle-aged man, and appeared rather severely prostrated. He understood but little English, and even when spoken to in his own language (Bulgarian) seemed inattentive and confused. He was observed

detail from which conclusions may be drawn which are worthy of consideration.

I hardly feel justified in stating that conclusions of a definite nature have been drawn from his study; rather would I say, in closing, that the following suggestions have presented themselves from the above work. These conclusions or suggestions, as I prefer to call them for the present, are based upon the study of one hundred and fifty-seven cases from the Monson State Hospital, seventy-five females and eighty-two males, including practically all the hereditary cases of epilepsy which have been admitted to the hospital where complete family histories were available.

1. Epilepsy, alcohol, insanity, migraine and feeble-mindedness are named in the order of the frequency with which each factor was met.

2. Named in the order of their potency in the production of an early onset of the epilepsy in the offspring, feeble-mindedness came first, followed by migraine, epilepsy, alcohol, and insanity.

3. With the exception of alcoholism all the maternal defective factors were manifested in the offspring at an earlier date in the form of epilepsy than those factors transmitted by the father.

4. When both parents had the same defect

to seowl occasionally and to put his hand to his head. The conjunctivae were markedly suffused and presented distinct petechial extravasations, five in the right, and one in the left lower fold. Photophobia, however, was not present. The pupils were contracted but otherwise normal. The tongue was thick, glazed, and fissured; the teeth were covered with sordes; the throat was dry and red. There was marked hypersensitiveness at Libman's test point (styloid process). The neck was held rather rigid, apparently to prevent movements of the head. At any rate there were no unequivocal signs of meningeal irritation—no tache, Kernig, Brudzinski, or Babinski. The knee-jerks were not elicited.

The patient coughed occasionally without bringing up sputum. The respirations were accelerated (34 to the minute) but save for some scattered rhonchi, the lungs were negative. The heart borders were normal, the action rapid, and the sounds of poor quality; no murmurs were audible. The pulse was full and diastolic. The sharp edge of the spleen could be felt 3 c.m. below the costal margin.

The skin showed a remarkably profuse, blotchy,

eruption, universally distributed except on the face and genitalia. The rash was distinctly visible on the dorsum of the hands and feet; it was most marked on the shoulders and abdomen. The lesions consisted of dirty pink macules and purplish petechiae, with indistinct borders fading irregularly into the surrounding skin. Especially common was a large macule with a petechial center. There was no herpes.

Course. The patient gradually became more prostrated and delirious. He mumbled to himself and on several occasions tried to get out of bed. There was involuntary urination and defecation. The pulse increased in rate, reaching 132 on the 15th of April. The cough became more frequent and moist râles developed at both bases; the respiration reached 44 on April 16, when the patient developed a transient hoarseness. At this point the rash began to fade perceptibly. The next day he seemed brighter.

On April 18 (tenth day of the disease), the temperature, which had heretofore remained practically constant between 103.6 and 104, and which had not responded to sponging, suddenly fell to 100.2. It rose in the afternoon, vacillated somewhat the next

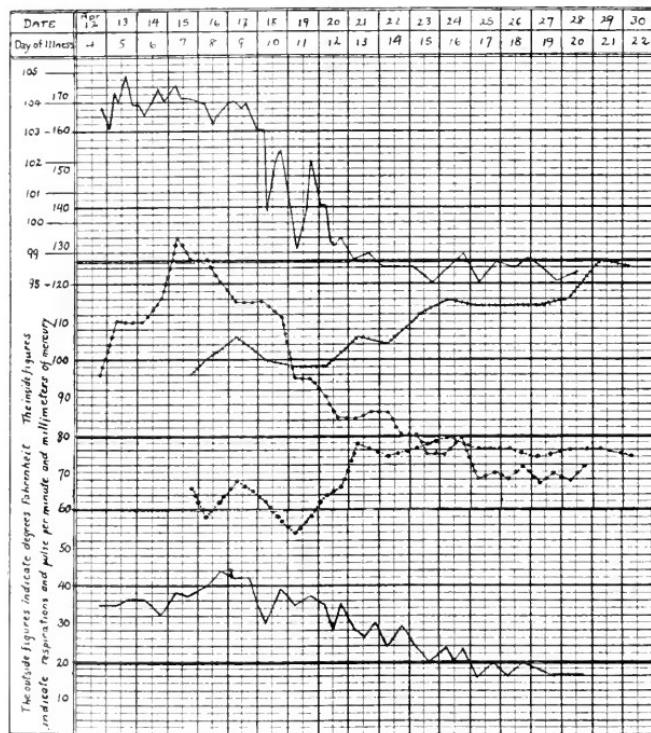


FIG. 1.
Temperature, Pulse, Respirations, and Blood Pressure in a Case of Typhus Fever.

The above is a modified Janeway blood-pressure and pulse chart. The uppermost (solid) curve represents the temperature, the second (dotted) curve the pulse, the third (cross-hatched) curve the systolic pressure, the fourth (dashed) curve the diastolic pressure, and the bottommost (solid) curve the respirations. The uppermost heavy horizontal line (at "126") represents the "normal" temperature and systolic blood-pressure, the middle heavy horizontal line (at "80") gives the "normal" pulse rate and diastolic blood-pressure, whereas the lowermost heavy horizontal line (at "20") indicates the "normal" respiration rate.

two days, and then remained at normal. On the first day of defervescence the patient was put on stimulation (whisky and digitalis), which was continued for four days. Even before the drop in temperature the pulse became perceptibly slower. On the 19th, irregularities due to premature contractions were observed; on the 24th, dicrotism could no longer be made out; and on the 25th, the premature contractions ceased. The following day the lungs were found clear of rales. On April 30, the day of his discharge, a short systolic murmur was heard at the apex for the first time. The spleen was still palpable just below the costal margin, the skin showed a few fading spots (there was no desquamation), the eyes were clear.

CLINICAL OBSERVATIONS.

Blood Pressure. Although it is well known that typhus, like typhoid, is a low blood-pressure disease, studies of this feature have apparently not been recorded in the literature. A chart of the systolic and diastolic blood pressure in our case is presented herewith (Fig. 1). The observations were made with a "Tycos" instrument at 10 o'clock each morning. The diastolic readings were taken by the auscultatory method. A study of the chart seems to bring out the following points:—

(1) The diastolic blood pressure varied directly with the temperature and pulse rate, and appeared to be a more accurate guide to the general condition of the patient than the systolic pressure. The lowest diastolic reading (54) was obtained on the eleventh day, in the midst of the "crisis" and at a time when the heart first showed signs of weakness. The diastolic pressure reached "normal" on the first day of defervescence. (2) The lowest pulse pressure was recorded on the first day of defervescence. (3) The systolic pressure rose relatively slowly after the crisis and did not reach "normal" until the ninth day of defervescence.

If we regard the diastolic pressure as "an indicator of the amount of peripheral resistance

present in the arterial system" and the systolic as "an indicator of the force of the ventricular contraction of the heart" (Nicholson¹), the conclusion is suggested that the restoration of normal arterial tone is one of the immediate accompaniments of crisis—as is the resumption of normal temperature and pulse rate—whereas the full heart power is completely recuperated only at a distinctly later period. Of course further studies of this point should be made before definite conclusions are drawn.

The Blood Picture. Rabinowitsch² was apparently the first to point out that in the early stages of typhus there is an increase in the large mononuclear cells (similar to the "irritation forms" of Türk) and that these cells disappear from the circulating blood just before the crisis. He observed this phenomenon in 98 of 125 cases. Wilder³ mentions that an increase in the large mononuclears is an invariable accompaniment of experimental typhus in monkeys. The observations in our case seem to be in accord with these findings. The examinations were made each morning at ten o'clock, and from 200 to 400 cells were counted at each sitting. As indicated in the accompanying table (Fig. 2), the large mononuclears appeared in excess during the height of the disease, disappeared on the day preceding the "crisis," showed a transient rise on the last day of the "crisis,"* and then dropped to normal limits during convalescence. This peculiar behavior of the leucocytes seems to be a fourth specific phenomenon associated with defervescence in typhus fever. The total number of white cells did not reach normal until the fourth day of normal temperature.

Hemoglobin estimations, made on the twelfth, thirteenth, and fourteenth days, varied between 90 and 95% (Sahli). The red cells at that time ran between 4,200,000 and 4,550,000. Unfortunately, no erythrocyte counts were made during

* The term "crisis" refers to the entire period of rapid defervescence.

FIG. 2.—LEUCOCYTE COUNTS IN A CASE OF TYPHUS FEVER.

Date.	Day of Illness.	W. B. C.	% Polys.	% S. L.	% L. L.	% L. M.	% E.	% B.
April 13.....	4	13,500	44	4	7	12		
" 14.....	5	No count	—	—	—	—		
" 15.....	6	11,500	78	3	14	5		
" 16.....	7	13,500	81	4	9	6		
" 17.....	8	13,400	74	6	15	4.5	0.5	
" 18.....	9	13,700	82	4	13	1		
" 19*.....	10	11,000	80.5	4	15	0	0.5	
" 20*.....	11	10,000	70	4	18	7		1
" 21*.....	12	9,000	71	3.5	22.5	2.5	0.5	
" 22.....	13	9,000	61	7	32			
" 23.....	14	8,000	61	6	32	1		
" 24.....	15	6,500	73	6	19	2		
" 25.....	16	6,000	65	7.5	25	1	1	0.5
" 26.....	17	5,600	68	4	27	0	0	1
" 27.....	18	6,000	67.5	9.25	21.75	1.75	0	0.25
" 28.....	19	5,100	58	19.5	22	0		0.5
" 29.....	20	—	67.75	8.25				
" 30.....	21	—	59	6.5	33	0.5	0.5	0.5

* Days of crisis.

W. B. C. = white blood cells.

Polys. = polymorphonuclear neutrophiles.

S. L. = small lymphocytes.

L. L. = large lymphocytes.

L. M. = Large mononuclears.

E. = eosinophiles.

B. = basophiles.

the acute period of the disease, but appreciable anemia was certainly never present. In view of the above findings, it is hard to accept Rabinowitsch's belief that the poison of typhus fever is essentially hemolytic in nature.

The Urine. This is said to be diminished in amount and increased in specific gravity except just before the crisis, when many authors describe a transient diuresis as a not uncommon occurrence (Murchison,⁴ Curschmann⁵). Our patient voided freely throughout the entire illness, and although complete twenty-four hour specimens were not always obtained, it is safe to estimate the average daily excretion at from one and a half to two liters. The specific gravity varied between 1005 and 1015. The fluid intake was forced from the beginning.

There was a rather marked febrile albuminuria and cylindruria, and even a month after defervescence a few hyaline casts and a trace of albumen were demonstrable. Our records showed an apparent increase in acidity (to phenolphthalein) and in specific gravity, beginning the day before the crisis and continuing a week after defervescence. Unfortunately we were unable to follow the urea excretion during the illness. This is especially to be regretted as there is serious disagreement as to its behavior in typhus. Thus the older writers (cited by Murchison) speak of a decided increase in the urea output, whereas Curschmann insists that this is not often the case and that the excretion is even diminished. A retention of chlorides is constant.

In our case the diazo was positive as long as the fever lasted. Tests for bile, sugar, acetone, and diacetic acid were constantly negative. Rabinowitsch⁶ found urobilin increased in 74% of his cases. The test, performed according to his directions, was repeatedly negative in our hands.

Complement-fixation and agglutination tests have been used of late in the study of typhus fever. In the series of cases forming the basis of the recent important contribution of Plotz, Olitsky and Baehr,⁷ 71.8 per cent. gave a positive complement-fixation test, and 92.1 per cent. gave a positive agglutination test in the post-critical stage of the disease. In our case the former reaction was negative, but the latter was strongly positive (1:1800).

We wish to express our thanks to Dr. Plotz for his studies on the blood-serum of our case; also to Dr. F. W. Sears, Health Officer of Syracuse; and to Dr. F. C. Burrows, physician to the City Hospital, for their courtesy in turning the case over to us for study.

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BLOOD-PRESSURE.

BY CADIS PHIPPS, M.D., BOSTON.

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A LIST of figures denoting the blood-pressure determined in different parts of the body would at first thought seem uninteresting. However, when we stop to consider the importance placed upon an individual's blood pressure in regard to diagnosis, prognosis, and treatment, and the narrow limits observed in examination for life insurance (120 mm. to 140 mm. for a man and 110 mm. to 130 mm. for a woman), it is of value to know how great may be the variations in the same individual.

In brief, blood-pressure depends upon the energy of the heart, the peripheral resistance, and, to a lesser degree, the volume of blood. That a certain minimum pressure (diastole) is maintained depends upon this peripheral resistance of arterioles and capillaries and also the elasticity of the vessel walls. Friction also plays a part,—not so much friction of the blood with vessel walls, for the blood directly in contact with them is almost stationary, but rather the friction within the circulating fluid itself which, of course, varies directly with the viscosity. (Poiseuille¹ has formulated a law explaining this).

However, there arises the question of what factors may enter into the production of blood-pressure as we ordinarily determine it, and if these conditions, unless recognized, may not be a source of error. There are certain physiological variations such as those caused by posture, emotion, digestion, exercise, etc.

For example, we know that blood-pressure becomes higher upon a patient's arising from a recumbent position. If, however, the individual is markedly fatigued, the pressure may fall 10 or 20 mm. It has also been noted that "neurasthenics" show this fall instead of the expected rise.

Emotion may raise the blood-pressure. Probably many of us have noticed that a blood-pressure which we have taken previously will have risen 20 or even 30 mm. when determined in the presence of a class of students, and the same individual's blood-pressure will return to the first height observed shortly after the excitement of the clinic has passed.

Being curious to determine if possible whether or not the location of the artery upon which pressure is applied and the thickness of the over-

¹ Berlin. klin. Woch., 1912, p. 773.

Sex.	Age.	Palp.	Arm. Ausc.	Ruot. Ausc.	Thigh.	Calf.	Left. Ausc.	Arm. Ausc.	Palp.	Arm. Ausc.	Left. Thigh.	Calf.
1. Cancer of liver, slight atheroma.....	M. 80	150	145	162	168	150	145	143	140	140	143	140
2. Acute bronchitis, moderate atheroma.....	M. 65	118	118	130	135	118	118	125	125	130	125	130
3. Acute art. rheumatism.....	M. 56	125	120	—	—	125	125	120	120	130	130	140
4. Chronic alcoholism.....	F. 36	130	125	140	143	130	125	125	125	125	125	132
5. Chorea	F. 16	110	115	120	100	102	102	102	102	102	102	102
6. Subacute appendicitis.....	M. 27	118	115	140	129	110	110	110	110	110	110	110
7. Lobar pneumonia.....	M. 28	140	140	124	140	140	140	140	140	140	140	140
8. Lobar pneumonia.....	M. 36	129	120	115	125	120	120	120	120	120	120	122
9. Acute art. rheum., mitral regurg.....	M. 22	115	120	148	142	110	110	115	115	115	115	116
10. Acute art. rheum.....	M. 37	118	118	140	105	118	118	118	118	118	118	120
11. Acute art. rheum., mitral regurg.....	M. 19	140	140	170	130	130	130	130	130	130	130	132
12. Alcohol cirrhosis of liver.....	F. 44	150	150	160	120	120	120	120	120	120	120	120
13. Marked atheroma, lobar pneumonia.....	F. 76	180	180	186	180	180	180	180	180	180	180	182
14. Lobar pneumonia.....	F. 29	105	105	146	146	105	105	110	110	110	110	116
15. Gen. paresis, slight atheroma.....	M. 45	150	145	160	140	150	150	150	150	150	150	150
16. Chronic alcoholism.....	M. 39	140	125	195	160	140	140	140	140	140	140	140
17. Constitution.....	F. 19	125	120	122	126	115	115	115	115	115	115	116
18. Hypertrophied heart, lobar pneumonia.....	M. 37	110	110	130	118	115	115	115	115	115	115	116
19. Pulmonary tuberculosis.....	M. 29	120	117	—	—	118	118	—	—	—	—	102
20. Pulmonary tuberculosi.....	M. 36	124	122	—	—	120	120	120	120	120	120	120
21. Pregnancy (7 mon.) mitral regurg.....	F. 27	100	105	125	115	105	105	105	105	105	105	105
22. Mitral regurg.....	M. 23	130	130	170	125	140	140	140	140	140	140	140
23. Acute follic. tonsillitis.....	F. 24	120	125	135	125	115	115	115	115	115	115	115
24. Chronic alcoholism, pregnancy (4 mon.)	F. 38	115	125	140	123	112	112	115	115	115	115	130
25. Vertigo—otitis media.....	M. 29	125	120	122	115	125	125	125	125	125	125	135
26. Aortic stenosis and regurg.....	M. 13	110	110	152	160	115	115	115	115	115	115	115
27. Mitral regurg.....	M. 15	130	125	160	185	136	136	136	136	136	136	136
28. Erysipelas, moderate atheroma.....	F. 61	158	150	185	170	150	150	150	150	150	150	150
29. Lobar pneumonia.....	M. 17	115	120	142	116	115	115	115	115	115	115	116
30. Slight atheroma, cancer of sigmoid.....	F. 50	95	100	124	104	95	95	95	95	95	95	95
31. Acute art. rheum.....	F. 40	90	95	129	98	99	99	99	99	99	99	99
32. Acute gastritis.....	M. 35	138	138	150	120	138	138	138	138	138	138	138
33. Cerebral haem. (trauma).....	M. 29	140	140	190	130	140	140	140	140	140	140	140
34. Mitral regurg., pericardial effusion.....	M. 31	140	152	192	170	150	150	150	150	150	150	150
35. Acute art. rheum., moderate atheroma.....	M. 56	120	110	148	115	122	122	122	122	122	122	125
36. Aortic aneurysm.....	M. 29	105	105	140	145	125	125	125	125	125	125	125

(With the exception of Cases 1, 2, 12, 15, 26, 30, and 33 the acute symptoms had disappeared and the patients were ready for discharge.)

lying tissues might influence the readings, I have tried fastening the cuff about each arm (our usual method) and also about each thigh and calf, determining the pressure in these latter instances by the cessation of the pulsation in the Dorsalis Pedis artery. I have used a "Tyco's" sphygmomanometer, verifying the results frequently with a mercury manometer, both of them having a rubber cuff 12 cm. in width. My usual method was to have one of my house-physicians take the reading at a signal from me, repeating this until I had three practically identical readings, or else to take the pressure himself and compare his findings with mine afterward. In this way I hoped to avoid personal error. In each instance the patient was recumbent. I avoided cases having such local conditions as injury to the extremities, oedema, etc., which might prove a source of error, but on the other hand I have been quite uninfluenced by blood-pressure findings, in my selection, having included, for the sake of completeness, three cases in which I was unable to palpate the Dorsalis Pedis artery in one foot and one case where I could not feel it in either.

CASES.

Of the thirty-six cases observed, there was only one (No. 13) in which the pressure was everywhere practically the same.

In thirty-three instances there was a difference of 5 mm. or more in the brachial pressure as determined by palpation compared with the auscultatory reading, eighteen readings showing a higher pressure by palpation and fifteen the contrary. In four cases the variation was as great as 10 mm.

The right and left arms showed a difference in pressure, apparently, of 10 mm. or more in 20% of the cases, with no tendency for it to be uniformly higher in either arm. It is of particular interest to note here that in Case No. 36 (aortic aneurysm, verified by x-ray) the difference in pressure was 20 mm., whereas in Case No. 12 (cirrhosis of the liver with no pathological condition of the heart and only slight arterio-sclerosis, as shown by autopsy), the variation was 30 mm.

The variations between pressures obtained by applying the cuff on the arms, thighs, and calves, and between the right and left thighs, and the right and left calves, were even more marked. The results are almost impossible to classify as the variations range from 5 or 10 mm. to over 60 mm. In general, it may be said that the pressures obtained in the arms are lower than those obtained in the thighs or calves, although in Case No. 12 the pressure in the arm was 30 mm. higher than that obtained in the calf.

To get further evidence of the influence on the blood-pressure reading of the tissues overlying the artery, I placed a strip of fatty meat, about 10 em. wide and 2 em. in thickness, loosely

about the arm under the cuff on two normal young adults. It caused no variation from the reading which I obtained on the bare arm. Placing a small roll of meat along the edge of the biceps gave me a reading of about 10 mm. lower. The same results were obtained by using folds of gauze.

During these observations I have noticed, furthermore, that if the patient raised his head the pressure rose 5 to 10 mm. A single vigorous cough made the needle fluctuate 10 to 20 points upward, and, what was more interesting to me, even cases where the patient's pressure was as low as 130 mm., if the pressure in the cuff were increased to even 200 mm., a vigorous cough would cause the needle to move and also a distinctly audible and palpable pulse-beat would be transmitted.

SUMMARY.

1. A difference of 5 or 10 mm. in the blood-pressure reading may be observed, dependent on whether the pressure be determined by palpation or auscultation, but neither method can be said to be the more accurate.
2. The blood-pressure reading may vary in the same individual between the right and the left arms, thighs, or calves, or between arm and thigh and calf; this variation is in no way uniform.
3. The variations are apparently as great in young individuals as in old, and in cases showing healthy arterial walls as where there is arterio-sclerosis.
4. The location of the artery, especially in its relation to other structures such as bone and muscle, probably is of much greater importance in determining the blood-pressure reading than is thickness of the overlying tissues.
5. Difference between the right and left brachial pressures is by no means diagnostic of aortic aneurysm.
6. The presence of a higher pressure in the leg than in the arm is not diagnostic of aortic insufficiency, although this has been stated by previous observers. (Leonard Hill, "Heart," 1910, i, p. 73, and Humphrey Rolleston, "Heart," 1912, iv, p. 83).
7. Blood-pressure in the vessels of the leg and arm is *not* "practically the same" ("Blood Pressure," Edward H. Goodman, 1914, p. 89) in normal individuals."

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SAMUEL JOHNSON AND DR. THOMAS LAWRENCE.

OF the various physicians with whom Samuel Johnson at various times of his life came into contact there was none with whom his friendship was more intimate than with Dr. Thomas Lawrence, whose name appears frequently in Johnson's correspondence and in the pages of Boswell. Dr. Lawrence was not only one of the most eminent physicians of his time but was a man of culture, a profound Latin scholar, and gifted with a degree of literary taste and insight which made it possible for Johnson to meet him upon more than a professional basis.

It is interesting that this Dr. Lawrence was a descendant of the Lawrence who was an intimate friend of John Milton, and to whom the latter addressed his famous tenth sonnet beginning,

"Lawrence, of virtuous father virtuous son."

This virtuous father was Henry Lawrence, member for Herefordshire in the Little Parlia-

ment of 1653; president of Oliver Cromwell's council; high in favor with Richard Cromwell; and author of "Our Communion and War with Angels" (published in 1646). Of the virtuous son, Milton's friend, little is known.

Dr. Thomas Lawrence, their descendant, was born in 1721. The essential facts of his life are to be found in dictionaries of medical biography. His first acquaintance with Johnson seems to have begun about 1754; for in a memorandum of that date Johnson mentions him among a list of forty persons whom he visited. The correspondence between the two, however, forming our chief knowledge of their relations, did not begin until some years later. In 1758 Johnson mentions Dr. Lawrence in a letter to Mr. Langton; and again in one of his letters to Mrs. Thrale he refers to Lawrence as saying that medical treatises should always be in Latin. Lawrence's letters to Johnson were written in that language. Finally under date of February 7, 1775, appears Johnson's first letter to "the learned and worthy Dr. Lawrence whom Dr. Johnson respected and loved as his physician and friend."

"Sir:—One of the Scotch physicians is now prosecuting a corporation that in some public instrument have styled him *doctor of medicine* instead of *physician*. Boswell desires, being advocate for the corporation, to know whether *doctor of medicine* is not a legitimate title, and whether it may be considered as a disadvantageous distinction. I am to write to night: be pleased to tell me. I am, Sir, your most, etc.,

"Sam. Johnson."

As time went on, Johnson's regard for Lawrence evidently increased. In one of his conversations in 1776 he said, "My knowledge of physie I learnt from Dr. James, whom I helped in writing the proposals for his dictionary, and also a little in the dictionary itself. I also learnt from Dr. Lawrence, but was then grown more stubborn." In January, 1777, Johnson first consulted Dr. Lawrence professionally. He had been suffering for some days from dyspnea and says in a letter to Mrs. Thrale under date of January 15, "I found it now time to do something, and went to Dr. Lawrence, and told him I would do what he should order without reading the prescription. He sent for a chirurgeon and took about twelve ounces of blood, and in the afternoon I got sleep in a chair.

"At night, when I came to lie down, after trial of an hour or two, I found sleep impracti-

eable, and therefore did what the doctor permitted in a case of distress. I rose, and opening the orifice, let out ten ounces more. Frank and I were awkward; but with Mr. Levett's help, we stopped the stream, and I lay down again, though to little purpose; the difficulty of breathing allowed no rest. I slept again in the daytime in an erect posture. The doctor has ordered me a second bleeding, which I hope will set my breath at liberty. Last night I could lie but a little at a time."

As years progressed Johnson's health grew steadily worse and the references to it in his letters became more and more frequent. His own sufferings, however, did not prevent him from sympathizing with those of his friends. In a letter to Lawrence under date of January 20, 1780, he begins with an account of his own illness: "I have been hindered by a vexatious and incessant cough, for which within these ten days I have been bled once, fasted four times, taken physic five times, and opiates, I think, six. This day it seems to remit." Following this, however, he proceeds with a most feeling and sympathetic address to his friend upon the recent loss of the latter's wife.

In a letter from London to Mrs. Porter, under date of April 8, 1780, Johnson says, "I have lately had colds; the first was pretty bad, with a very troublesome and frequent cough; but by bleeding and physic it was sent away. I have a cold now but not bad enough for bleeding." Bleeding and physic were the panaceas of the age. It is small wonder that people dreaded to visit the physician almost as much as the surgeon.—a dread whose inheritance is probably responsible for the failure of timely consultation even in the present day. In spite of all, Johnson's health seems even to have improved during the succeeding months, and on June 18, he says, "In the morning of this day I perceived a remission of those convulsions in my breast which had distressed me for more than twenty years." Lawrence himself was failing at this time and had grown exceedingly deaf, an infirmity to which Johnson makes reference in various letters to others. On March 19, 1782, Johnson wrote in his Prayers and Meditations, "Poor Lawrence has almost lost the sense of hearing: and I have lost the conversation of a learned, intelligent, and communicative companion, and a friend whom long familiarity has much endeared. Lawrence is one of the best men whom I have known." Croker quotes a rather pathetic

incident of a conversation between the two, struggling with their respective infirmities. Dr. Johnson was exceedingly ill and Mrs. Thrale accompanied him to consult Dr. Lawrence at the latter's office on Essex street. "The physician was, however, in some respects more to be pitied than the patient. Johnson was panting under asthma and dropsy; but Lawrence had been brought home that very morning struck with a palsy from which he had strove to awaken himself by blisters: they were both deaf and scarce able to speak, one from difficulty of breathing, the other from paralytic debility. To give and receive medical counsel, therefore, they sat down on each side of a table in the doctor's gloomy apartment, adorned with skeletons, and wrote questions and answers to each other in Latin." In May, 1782, Johnson again sent to Lawrence a brief Latin note descriptive of his symptoms:

"Maiis Calendis, 1782.

"Novum frigus, nova tussis, nova spirandi difficultas, novam sanguinis missionem suadent, quam tamen te inconsulto nolim fieri. Ad te venire vix possum, nee est eur ad me venias. Lievre vel non lievere uno verbo dicendum est; eaetera mihi et Holdero* reliqueris. Si per te hiebet, imperatur nuncio Holderum ad me deducere. Postquam tu discesseris quò me vertam?"

Though Dr. Lawrence made slight recovery from his paralytic shock, his health continued steadily to fail and he died on June 13, 1783. His son, the Rev. John Lawrence, died two days later. It was upon an earlier illness of this son that Johnson had written his Latin ode, "Ad Thomam Lawrence," (1, 180). On June 17, Johnson writes in a letter to Taylor, "It has pleased God, by a paralytic stroke in the night, to deprive me of speech. I am very desirous of Dr. Heberden's assistance, as I think my case is not past remedy." Later in a letter to Mrs. Thrale he refers feelingly to the death of Lawrence. Apparently for a year or two, on account of Lawrence's failing health, he had begun to depend medically upon Dr. Heberden and Dr. Pepys.

The story of Johnson's last illness and of his death, on December 13, 1784, is written at length in the pages of Boswell. It is interesting to know that there has recently been brought to this country a collection of eleven of the autograph letters of Johnson to Lawrence, as well as the original manuscript of the Latin ode. Only one of these letters, that quoted above, is included in Boswell's Life. The remaining ten

* Johnson's apothecary in the Strand.

are still unpublished and eight of them deal with Johnson's state of health.

The relations of great men, whether men of letters or of affairs, with their physicians are, perhaps, no different in kind from those of more ordinary patients: yet they seem often to acquire, especially for members of the profession, a peculiar interest dependent not only upon the distinction of the patient, but upon the character of his consultant and adviser as well. Dr. Lawrence was a man of as great distinction in his own profession, and as truly a representative of the age, as was Johnson himself; and the record of their association, both social and professional, during so many years, has fortunately persisted through their letters and through the diligence of Boswell, their common biographer.

HAVELOCK ELLIS AND BIRTH CONTROL.

In the September issue of *Physical Culture*, Mr. Havelock Ellis, the distinguished British sociologist and scientific writer on eugenic subjects, presents the first of a projected series of three articles on birth control. It is probably ill to differ with one of his world-recognized authority, yet there seem certain points in which, perhaps, at least in this preliminary article, he errs in his interpretation of admitted facts.

The burden of Mr. Ellis's contention appears to be that because lower forms of life, like the herring, are profusely prolific, whereas higher forms, like the elephant, reproduce themselves very slowly, therefore to reduce the birth-rate in man is to improve the type and accelerate evolution. As evidence of this he adduces Spencer's theory of the function of sex in evolution, which Prof. Coulter has expressed as "reproduction under peculiar difficulties."

..... "The object of sex is by no means to aid reproduction, but, rather, to subordinate and check reproduction in order to evolve higher and more complex beings. Here we come to the great principle, which Herbert Spencer developed at length in his 'Principles of Biology.' that, as he put it, Individuation and Genesis vary inversely, whence it follows that advancing evolution must be accompanied by declining fertility. Individuation, which means complexity of structure, has advanced as Genesis, the unrestricted tendency to mere multiplication, has receded. This involves a vastly diminished number of offspring, but an immensely increased amount of time and care in the creation and

breeding of each; it involves also that the reproductive life of the organism is shortened and more or less confined to special periods; it begins much later, and usually ends earlier, and even in its period of activity it tends to fall into cycles. Nature, we see, who at the outset had endowed her children so lavishly with the aptitude for multiplication, grown wiser now, expends her fertile imagination in devising preventive checks on reproduction for her children's use.

"The result is that though reproduction is greatly slackened, evolution is greatly accelerated. The significance of sex, as Coulter puts it, 'lies in the fact that it makes organic evolution more rapid and far more varied.' It is scarcely necessary to emphasize that a highly important, and, indeed, essential aspect of this greater individuation is a higher survival value. The more complex and better equipped creature can meet and subdue difficulties and dangers to which the more lowly organized creature that came before-produced wholesale in a way which Nature now seems to look back on as cheap and nasty—succumbed helplessly without an effort. The idea of economy begins to assert itself in the world. It became clear in the course of evolution that it is better to produce really good and highly efficient organisms, at whatever cost, than to be content with cheap production on a wholesale scale. They allowed greater developmental progress to be made, and they lasted better. Even before man began, it was proved in the animal world that the death-rate falls as the birth-rate falls."

These statements are doubtless all true, but the inference which Mr. Ellis seems to draw from them is that to reduce the birth-rate is necessarily to improve environment and increase the good quality of the stock.

..... "To improve the environment is to check reproduction, being indeed the one and only fundamental way in which undue reproduction can be checked. That may be said to be an aspect of the opposition between Genesis and Individuation, on which Herbert Spencer insisted, for by improving the environment we necessarily improve the individual who is rooted in that environment. It is not, we must remember, a matter of conscious and voluntary action. That is clearly manifest by the fact that it occurs even among the most primitive micro-organisms; when placed under unfavorable conditions as to food and environment they tend to pass into a reproductive phase and by sporulation or otherwise begin to produce new individuals rapidly. It is the same in Man. Improve the environment and reproduction is checked. That is, as Professor Benjamin Moore has said, 'the simple biological reply to good economic conditions.' It is only among the poor, the ignorant and the wretched that reproduction flour-

ishes. Those who desire a high birth-rate are desiring, whether they know it or not, the increase of poverty, ignorance and wretchedness."

The question arises whether possibly Mr. Els may not have mistaken effect for cause. No doubt it is true that, within certain limits, birth-rate automatically adjusts itself to conditions; but is it equally true that, within limits, artificial control of birth-rate can regulate conditions? Very likely it can, so long as the race or species practising it does not come into collision with some inimical other race or form of life. But when this does occur, the factor of numbers may well become of decisive importance, and a more prolific, though in some other details inferior, type may outstrip its less fertile, more highly individualized rival. Indeed it seems that even Spencer may have failed to realize that, though individualization is one of the primary methods of evolution, it may be carried on too far and too rapidly and wreck itself by its own momentum. The highly developed type of civilization, which sacrifices the race to the individual, may conceivably be unable, for sheer lack of numbers, to cope with the type of civilization which is willing to sacrifice the individual for the race. It is neither numbers nor high individualization alone which counts, but a combination of the compossible maximum of each.

Life might be far simpler, were a single race of men occupying the world alone, yet this would be undesirable, since it would remove the essential element of conflict. In the long course of evolution, man has triumphed over other forms of life, until only the insects and bacteria remain an important menace. He has not done this, however, by reducing the birth-rate. Today his chief foes remain they of his own household. The factors which lead to an artificial reduction of birth-rate constitute one of the chief sources of danger to any civilization in the face of another civilization in which these causes have not become so extensively operative.

same manner as previous sessions. Following the precedent established at London in July, 1914, however, the number in attendance will be limited in accordance with the capacity of the clinics and operating rooms where demonstrations are to be held. A preliminary program for these clinics has already been announced at the leading hospitals of the city. Further details of this program and account of the sessions will appear in subsequent issues of the JOURNAL. The registration for the Boston session is nearly complete and special tickets are soon to be issued. The headquarters of the Congress will be at the Copley-Plaza Hotel.

A series of meetings has been arranged for the first four evenings of the week. At the meeting on Monday evening, October 25, the president elect, Dr. Charles H. Mayo, will deliver his annual address. On each of the three subsequent evenings there will be two meetings, one for the section on general surgery, the other for the section on surgical specialties. The principal papers at these meetings will be read by visiting surgeons and the discussion will be led by Boston surgeons.

It is recognized that the essential part of the meetings of this Congress is the clinical demonstrations, and it is intended that there shall be a complete representation of the clinical facilities of Boston and a demonstration of the work which is being done by its leading general surgeons and specialists. The JOURNAL is glad, through its columns, to extend the courtesy and welcome of the Boston profession to its guests. The success of the Congress will depend upon the energy and cordiality with which every member of that profession does his share in carrying out the careful and thorough plans which have been made by the committee of arrangements for this first meeting of the Clinical Congress of Surgeons of North America in Boston.

MEDICAL NOTES.

NEW YORK DEATH RATE INCREASES.—During the week ended September 11 there were 1355 deaths with a rate of 12.17 per 1,000 of population as compared with 1206 deaths and a rate of 11.27 for the corresponding week of last year. While there were 149 more deaths during the past week, the increase in population accounted for 49. The other 100 were due to increased mortality of certain diseases, particularly measles, scarlet fever, diphtheria, whooping

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

THE sixth annual session of the Clinical Congress of Surgeons of North America is to be held in Boston during the week beginning October 25, 1915, and in general will be conducted in the

cough, lobar and bronchial pneumonia and pulmonary tuberculosis.

In spite of last week's jump in the death rate, the rate for the first 37 weeks of 1915 is only 13.54 as compared with 13.97 for the corresponding period of last year.

In view of the loss of population in the City of New York, occasioned by the European war, the Department of Health has felt the need of revising its estimates of the population and has been awaiting the result of the state census, but the Department does not as yet feel justified in accepting as a basis for its calculation, the figures published recently by authority of the Secretary of State. The Registrar has made an estimate of the population, giving weight to the various factors that have been reducing the population during the past year. The revised estimate of the population is 5,597,000. The rate for the past week, based on this revised population, is 12.63.

TYPHOID FEVER IN ILLINOIS.—During the month of August, 1200 cases of typhoid fever were reported in Illinois and at the usual rate it is expected that there will be 3500 cases by the end of September. Extensive anti-typhoid inoculation is advised by the Illinois Board of Health as a check against the spread of this epidemic. The value of such inoculation is already proved beyond question. During the year 1914, there were among the 93,000 troops of the United States only seven cases of typhoid fever. Of these patients four had not been inoculated. The three who had been inoculated had a very mild form of the disease. Of the four not inoculated, all had the disease severely and two died.

PREVALENCE OF MENINGITIS, POLIOMYELITIS, SMALL-POX AND TYPHOID.—The weekly report of the United States Public Health Service for September 3, 1915, notes that during the month of July there were reported 20 cases of cerebro-spinal meningitis in New York, and 30 in Virginia. During the same period there were in New York 13 cases of poliomyelitis and 402 of typhoid; and in Virginia, 23 cases of poliomyelitis, 65 of small-pox and 620 of typhoid. There were 86 cases of small-pox in Kansas, 88 in Iowa and 141 in Indiana; and of typhoid there were 125 cases in California, 129 in Kansas, 149 in Indiana and 168 in Texas.

DECLINE IN UNITED STATES IMMIGRATION.—Report from Washington, D.C., on September 9 states that during the year ended June 30, 1915, only 326,700 immigrants came to this country, the lowest number since 1900. The total number of immigrants for the year ended June 30, 1914, was 1,218,480. This decline, which may presumably be attributed in great part to the European war, is regarded by some as an advantageous and by others as a disadvantageous phenomenon.

CARE OF THE TEETH.—A recent study by Bunting and Rickert, members of a research commission of the National Dental Association on the causes of decay of teeth, contains some interesting information regarding the use of tooth powders and tooth pastes. Various proprietary cleaning preparations were tested as to their effect on the enamel of the teeth in conjunction with the action of the saliva. They state that most of the powders on the market are made of chalk, some contain oxide of tin, and pumice stone and cuttle fish form an ingredient of the more gritty pastes. In conclusion the authors state as follows:

"We feel that dentists should make a more close study of the properties of dentifrices which they are prescribing, and also the needs of the mouths in which they are to be used. In cases in which the saliva is viscous and deposits form upon the teeth with great rapidity, making it difficult to keep the mouth clean, then a more abrasive dentifrice might be used to advantage. But when the saliva is thin and the deposits few, an abrasive powder or paste is clearly not indicated. Rather should a fine and hydroscopic preparation be employed which will polish and clean the teeth without wear. The results which we have obtained serve also to call attention again to the importance of brushing the teeth in a vertical rather than a horizontal manner. Especially is this true in the case of sharp preparations, which would have produced no such pronounced results as seen in the experiment had they been brushed lengthwise of the teeth."

PUBLIC HEALTH WORK AT HOME AND ABROAD.—Two publications, one from Scotland and one from Pennsylvania, are full of timely suggestions and recommendations for more efficient public health work. The former is a communication by Dr. William Robertson, health officer of Leith, who, in considering present sanitary conditions of Scotland and England, states that first of all, housing should be bettered. There should not be the opportunity for the unreliable factor to run into another burrow when the one he is living in is demolished for improvements. The segregation of human beings in great masses, under utter lack of hygienic surroundings, cannot fail to be a very important factor in morbidity and mortality.

The public house is the second of the evils which Dr. Robertson would correct. He is not advocating prohibition, but the proper regulation of alcohol. He instances the Germans, from whom, despite public opinion just now, it is possible to learn much. The Germans are very far from abstainers, in fact their capacity for certain alcoholic drinks is a by-word and their consumption of them enormous, but the sensible regulation of drinking robs the public house of its iniquities. Proper legislation on drinks and drinking in England and Scotland would be a benefit to the public health.

Thirdly, in considering his question, Dr. Robertson pointed out the unreasoning nature of the class which he thinks should receive sanitary education in the public schools. After a strike a firm in Leith looked into the improvement in housing of its laborers, eight hundred in number. The increase in wages was 30 per cent, the number of laborers taking advantage of this to improve their housing was two. This is the character of the unthinking, unreasoning personal factor with which health authorities labor.

Dr. Dixon, the health commissioner of Pennsylvania, in a current issue of the publication, "Little Talks on Health," discusses the frequency with which typhoid is contracted by picnic parties who rely on convenient brooks and springs for their drinking water. He urges that vacationists in putting up their lunches for day's trips should always include bottles of drinking water. He urges campers to boil all water used for drinking purposes as well as to discover, if possible, the sources from which their water comes to them.

TUBERCULOSIS WEEK.—In a previous issue of the JOURNAL we have noted from time to time the annual observance of Tuberculosis Sunday. This year the National Association for the Study and Prevention of Tuberculosis has determined to extend this observance over an entire week which is announced for December 6 to 12. Each day of this week will be devoted to a special aspect of the work.

"Medical Examination Day is set for Wednesday, December 8, and will be the first effort on a national scale to urge an annual physical examination for everyone. Plans for the day include an appeal to induce everyone, sick and well, to see a doctor and learn whether they are in good physical condition. The scheme includes also the inauguration on the part of factories, stores and offices of an annual physical examination for all employees. Thousands of anti-tuberculosis associations, other societies and dispensaries all over the country are expected to coöperate in furnishing free examinations for those not able to pay a physician.

Children's Health Crusade Day on Friday, December 10, is planned to interest and instruct school children in healthful living. Special exercises will be held at which lectures, essays, and playlets will be given on the subject of health. This will also be the occasion for launching the Red Cross Christmas seal sale in the schools.

The culmination of the campaign will be the sixth annual celebration of Tuberculosis Sunday. Last year on Tuberculosis Day over 100,000 churches gave attention to the subject of tuberculosis by sermons, talks and announcements. The governors of all the states will be asked to issue proclamations calling attention to the importance of increasing the knowledge of the public on how to avoid consumption. Clubs, lodges and societies will also be asked to consider the

subject at a meeting either on Tuberculosis Sunday or some other day of Tuberculosis Week."

A STUDY OF DIARRHEAL DISEASES AMONG NEW YORK BABIES.—The Bureau of Public Health and Hygiene of the New York Association for Improving the Condition of the Poor has issued a publication entitled "Flies and Diarrheal Disease." It contains a report of three months' study of over a thousand infants in New York on the relation of flies, dirt and artificial feeding and diarrheal diseases. Its conclusions are as follows:

"Almost twice as many infants (1.9) had diarrhea among fly-exposed as among fly-protected infants.

"The group of influences, associated with a dirty home, and designated as the 'dirt' factor, play a similar part in diarrheal incidence among infants. Almost twice as many infants (1.8) had diarrhea in dirty homes as in clean homes.

"Of somewhat greater importance is the influence of artificial feeding. Almost two and one-half times as many infants (2.4) were attacked by diarrhea among the artificially fed as among the breast fed infants. If the milk had not been selected and instruction in feeding given in many cases, this difference would have been still greater.

"The influence of flies and 'dirt' combined is of similar importance to that of artificial feeding. Almost two and a half times as many fly-exposed infants (2.4) in dirty homes were attacked by diarrhea as fly protected infants in clean homes.

"The influence of 'dirt' and artificial feeding combined is still greater. Three and a half times as many artificially fed infants (3.5) in dirty homes were attacked by diarrhea as breast fed infants in clean homes."

AMERICAN PUBLIC HEALTH ASSOCIATION.—At the meeting of the American Public Health Association held in Rochester, N. Y., Edward A. Moree, assistant secretary of the New York State Charities Aid Association, spoke at length on the important part that the daily press has played in promoting public health. In campaigns to reduce infant mortality, in the education of the public in matters of sanitation, milk supply and control of tuberculosis, he regarded the influence of the press as of paramount importance and advocated a campaign of purchased advertising on the evils of patent medicines.

The need for improving rural sanitation was strongly urged by Dr. W. S. Rankin, secretary of the North Carolina state board of health, who pointed out that the field of rural sanitation embraces more than 99% of the area of the United States and more than half of the country's population. He declared that the work of improving rural standards of sanitation should be initiated by the state governments and conducted by the local or county governments.

On September 9, a symposium was held on the death rate of the higher age groups. Dr. Elmer E. Rittenhouse, president of the Life Extension Institute stated that failure to observe the rules of hygiene had increased the death rate from diseases of heart, arteries and kidneys 00% in three decades.

Dr. E. L. Fisk, director of hygiene of the Life Extension Institute, recommended, for the prevention of these diseases, education in safeguarding the circulation and kidneys, and advice against over-strain, over-eating, taking of stimulants and lack of exercise.

Dr. J. F. Anderson, at the same symposium, made the statement that in only 41 cases out of 2,000,000 had vaccination resulted in tetanus.

On "Cancer and the Public Health," Dr. Francis Carter Wood, director of cancer research, Columbia University, declared that comparatively little is known about cancer and there are many problems for the elucidation of which further data are needed, the collection of which could begin at once.

Dr. H. W. Hill, medical health officer of London, Ont., said deaths from cancer were annually increasing, and if they continued would be as numerous by 1925 as those from tuberculosis.

J. Frank Chase of the New England Watch and Ward Society spoke on the suppression of habit-forming drugs. He stated that there were two factors in the controlling this vice, the demand and the supply. The Harrison Bill attempts almost wholly to regulate the supply for the United States. If the demand is to be checked, victims must be cured and recruiting of new victims prevented. He therefore urges that, to accomplish this, drug users who are criminals should be segregated, and institutions created for the segregation of drug users who are not criminals, and thirdly, that more careful prescribing on the part of physicians be enforced by more stringent laws and the coöperation of medical societies. The standing committee on habit-forming drugs presented their report. Chief among the committee's recommendations is that a census be made of all habitual users of narcotic drugs; establishment by the states of custodial institutions for non-criminal drug users, and the enactment of laws for more efficient restriction of physicians in prescribing drugs are also recommended.

At the annual election of officers of the Association, the following men were elected: President, Dr. John F. Anderson, director of the hygiene laboratory, Washington, D. C.; first vice president, Dr. George W. Goler, health officer, Rochester; second vice president, Dr. Charles J. Easthastings, medical officer of health, Toronto, Ont.; third vice president, Dr. Omar Gillette, Colorado Springs; treasurer, Dr. Lee F. Frankel, Metropolitan Life Insurance Company; secretary, Prof. Selskar M. Gunn, Boston.

Honorary members: Dr. W. S. Gorgas, surgeon general, U. S. Army, Washington, D.C.; Dr. Stephen Smith, state board of charities, New York;

Dr. Frederick Montizambert, director general of public health, Dominion of Canada, Ottawa; and Dr. Henry D. Holton, Brattleboro, Vt. Directors for one, two and three years also were elected.

EUROPEAN WAR NOTES.

CONTINUED INCREASE IN COST OF DRUGS.—In previous issues of the JOURNAL we have, from time to time, noted the progressive increase in the cost of various drugs. During the week ended September 9, there was a further increase of three cents per ounce in the cost of quinine and of \$1.00 a pound in the price of antipyrin. These and other increases are partly genuine on account of interference with the supply and partly due to speculative action on the part of large holders.

EQUIPMENT OF HOSPITAL BY LAVAL UNIVERSITY.—It is announced that the British War Office has accepted an offer from Laval University of Quebec, to establish, equip and maintain for the remainder of the war a stationary hospital of 520 beds in France or wherever else it may be most needed.

BRITISH-ITALIAN AMBULANCE UNIT.—It is announced that a British ambulance unit has recently started for service in Italy. It will consist of twenty motor ambulances, of which sixteen were given by the Red Cross, and of five other motor cars. It will have a personnel of 55 under command of Mr. George Trevelyan, the historian.

AMERICAN SURGICAL UNITS FOR GERMANY.—It is announced that two American surgical units to consist of twenty surgeons and nurses are to be sent from New York under command of Dr. Herman Fischer, of the German Hospital, to Germany and Austria. This expedition is under the auspices of the American physicians' committee and will act in coöperation with the American Red Cross.

DECLINE OF BRITISH AND GERMAN BIRTH RATES.—Report from Amsterdam by way of London on September 12, states that during the month of July, 1915, there were only 2,520 births in Berlin compared with 3,370 in July, 1914. During the quarter ended July 31, 1914, there were in Berlin 10,030 births while during the corresponding quarter in 1915 there were only 7,523.

Statistics recently issued by the British Registrar General indicate that there has been an even greater decline in the growth of population in England and Wales than in Germany.

"The excess of births over deaths in the June quarter was 27,418 below that for the same period of last year.

The excesses for the four last comparative periods are: 1915, 74,515; 1914, 101,933; 1913, 105,727; 1912, 102,293.

The births in England and Wales in the June

quarter, 213,094, make the lowest recorded since the establishment of civil registration. The figures are 12,973 below the same period last year and correspond to an annual rate of 22.9 per thousand or 3.3 below the 10 years' average for the June quarters.

Deaths, totalling 138,579, were the highest for any June quarter in the decade and were 14,445 in excess of June, 1914.

Marriages, probably owing to the war, were 4,390 in excess of last year, at 55,406."

REPORT OF BELGIAN RELIEF COMMISSION.—The New York Belgian Relief Commission has recently issued a report describing its activities during the past ten months. In this time it has distributed food and other relief supplies to the value of more than \$80,000,000. "Up to the first of July, or the end of the first fiscal year of the commission's activities, there were sent to Belgium for the relief of the non-combatant population of the country 305,737 tons of flour, 15,275 tons of riee, 40,680 tons of corn, 15,546 tons of peas and beans, and other supplies, the total weight of which was 423,583 tons.

In addition to the supplies sent to Belgium, the commission has since the first of April last been feeding the destitute people of the German-occupied territory of France. These French sufferers number more than 2,500,000. More than 91,000,000 pounds of supplies have been sent to that part of France. Also about 10,000 tons of food have been donated to relief work in the Grand Duchy of Luxemburg.

The American Red Cross shipped on the Greek liner *Thessalonika* recently for the Red Cross organizations in Turkey and Serbia a consignment of supplies valued at more than \$4,000. Forty-four cases were consigned to Ambassador Morgenthau at Constantinople, and the rest to the various Red Cross organizations in Serbia."

WAR RELIEF FUNDS.—On September 17, the totals of the principal New England relief funds for the European war reached the following amounts:

Belgian Fund	\$277,560.07
St. George's Fund	11,143.36
French Fund	9,430.18
Italian Fund	3,138.10

DISTRIBUTION OF JEWISH RELIEF.—Report from the American Jewish Relief Committee in New York on September 14, states that the total contributions to the Jewish Fund in the United States now amount to \$929,238.38. This sum has been distributed as follows:—

"To Russia, \$455,000; to German Poland, \$195,000; to Austria-Hungary, \$85,000; to Swiss University students, \$2,500; to Jews at Salonica, \$5,000; to Jews at Aleppo, \$2,500; to Jews of Monastir, \$3,000; to Jews of Gallipoli and Dardanelles, \$2,500; to Rabbi Meir for relief in Uskub and Isehtip, \$1,000; to Palestine, \$25,000;

for stocking Vulcan with foodstuffs, medicines etc., \$84,627.81; administration expenses for offices of treasurer, secretary and propaganda committees, \$12,470.47; balance on hand, \$55,640.10.

BOSTON AND NEW ENGLAND.

HAYMARKET SQUARE RELIEF STATION.—It is reported that during the first eight months of the current year, 3000 fewer accident cases have been treated at the Haymarket Relief Station in Boston, than during the corresponding period in 1914. This is the first time for nine years that the number of cases has not increased at a steady annual rate of about 5%. The exact cause of this decline is hardly certain. It may be attributable in part to the decline of immigration since the outbreak of the war, and to the operation of the workmen's compensation law.

BOSTON HEALTH COMMISSION.—Dr. Francis X. Mahoney, the new health commissioner of Boston has finally announced the appointment of the deputy commissioners in charge of the various divisions of the department. Dr. Thomas B. Shay is to have charge of the medical division, Dr. Patrick H. Mullowney of the food division, Dr. William H. Davis of the vital statistic division, Mr. Thomas Jordan of the sanitary division and Dr. Francis H. Slack of the bacteriological laboratory.

SCARLET FEVER IN WAKEFIELD, MASS.—The public schools of Wakefield, Mass., have been ordered closed to prevent an epidemic of scarlet fever. Four cases have already developed and about 500 children have been exposed to the disease, more attacks are feared. The exposure occurred when a boy with scarlet fever attended the Labor Day performance of a local moving picture theatre. The theatre has been fumigated and ordered to remain empty for a week.

THE SPREAD OF PELLAGRA.—The State Department of Health reports in its monthly bulletin for August, 1915, the spread of pellagra in the state. It states that while in 1910 there was but one death from the disease in Massachusetts, during 1914 there were 18. In the year 1913 there were 1013 cases reported. The spread of the disease to all sections of the United States is matter of grave concern.

NEW HOSPITAL AT MARSHFIELD HILLS, MASS.—It is announced that a small general hospital erected in Marshfield Hills, Mass., for the benefit of the South Shore district between Quincy and Plymouth, will be ready for occupancy in about one month. It will consist of 33 beds sixteen for surgical cases, eleven for medical and six for obstetrical cases.

HOSPITAL BEQUESTS.—The will of the late Grace Parkman of Dorchester, Mass., which was filed in the Suffolk Registry of Probate on Sep-

ember 8, contained bequests of \$3000 each to the Dorchester Home for Consumptives and to Boston Children's Hospital. A second will, however, which was later found and filed, differs materially from the first and it is as yet uncertain how these legacies will be awarded.

HOSPITAL REQUIREMENTS AT PENIKESE ISLAND.—The recently published report of the State Board of Charity for the year ending November 0, 1914, records the progress in the care of persons at the Penikese Hospital, Penikese Island, here were at the close of the year ten patients remaining at the hospital, one patient having died and one being released. As has been previously pointed out in this JOURNAL, the present equipment of the Penikese Hospital is incapable of affording patients proper hospital care or of safeguarding nurses and attendants from undue exposure to contagion while performing their duties. The Board has again requested, therefore, that a modern hospital and dispensary building be erected for the proper care of these patients, and asks an appropriation of \$40,000 for this purpose.

APPOINTMENT OF DIRECTOR OF SCHOOL PHYSICIANS.—At a meeting of the school committee of Boston on September 9, Dr. William H. Devine of South Boston was appointed director of school physicians. This is a new office, created by the resignation of Dr. Harrington as director of school hygiene and made necessary because of the increase in the staff of school physicians. The details of this division of office appeared in previous issue of the JOURNAL. Dr. Devine will be in charge of forty physicians who will be chosen by civil service examination to be held in month, and of 46 nurses who are now in service.

REUNION OF MASSACHUSETTS GENERAL HOSPITAL NURSES.—The annual meeting and reunion of the alumnae of the Massachusetts General Hospital Training School for Nurses was held at that institution on Monday and Tuesday of last week, September 13 and 14. At the sessions Tuesday, Dr. William H. Smith read a paper "New Methods of Medical Treatment," and Frederick A. Washburn, the administrator, gave an address on the history of the hospital. It was announced that graduate nurses of the Massachusetts General Hospital have given \$1000 for the equipment of the Massachusetts Nurses Ward at the Belgian-American Hospital. The alumnae organization consists of 465 members and this reunion is the largest of its kind to be held by the association. Members came from various parts of New England, New York State and Canada.

The desirability of providing the association with an endowment was discussed, and the hope expressed that in eight years, at the time of the tenth anniversary of the training school, an endowment fund of \$250,000 can be turned over

to the trustees of the hospital, thereby providing adequate support for the training school and releasing the funds of the hospital used for that purpose, for other needed work.

MEASLES IN NANTUCKET.—In the current issue (August, 1915) of the monthly bulletin of the Massachusetts Health Commission is an account of the recent epidemic of measles in the island of Nantucket. Prior to May 7, 1915, only eight cases of measles had ever been reported in Nantucket, four in 1910 and four in 1911. During the present summer, however, 111 cases have occurred. The epidemic is thus described in part by Dr. Adam S. MacKnight, the local health officer:

"It is reasonably safe to assume that the Nantucket epidemic of measles has run its course, and, fortunately, indeed, with but one immediate fatality. Up to the present time the epidemic has not resulted in the development of any secondary foci of this disease among the children of visiting families, which, of course, was to be looked for.

"This epidemic, however, shows the silliness of failure to consult physicians in the early stages of measles, which are more likely to prove infectious than the later stages; the folly of indifferent nursing, lack of care, no prophylaxis; and a tendency toward letting such cases take care of themselves, together with a complete forgetfulness of the golden rule of isolation so far as other people's children are concerned; to say nothing about other members of the same family. The fact that there has been but one death cannot be construed to mean that this epidemic has not been serious; the sequelae tell the story.

"This epidemic has, however, whether intentionally or not, resulted, so far as this generation of children is concerned, in conferring a variable period of immunity, which will serve to protect them until other generations of children come along; then, unless those who have profited by the lesson of this epidemic take heed noting the late example, a repetition at the expense of the usual sufferers—the children themselves—will add another record to the measles history of Nantucket.

"This epidemic also serves to point toward the need of a more efficient school inspection than generally prevails throughout the Commonwealth, e. g., a school inspection that will include school hygiene, personal hygiene and the elementary principles of preventive medicine."

Correspondence.

WAR SURGERY IN FRANCE.

(From Our Special Correspondent.)

LONGUEUIL-ANNEL, OISE, FRANCE, Aug. 19, 1915.

Mr. Editor: I have been here at the American Hospital now for ten days. The hospital is situated

near Compiègne. At Compiègne, the battle-front changes its direction from nearly north and south, and runs to the southeast toward Soissons. Annel is even nearer the lines than is Compiègne, and the hospital itself is within three or four miles of the angle.

Because of its proximity to the trenches, the hospital receives its wounded within an hour or two of the time of injury. The first dressing is applied by the soldier himself or by his comrades; he is then taken to a *poste de secours*, which is an army dressing station in one of the small villages near the lines. There a superficial dressing is done, and he is brought by ambulance to the hospital. We draw cases from a section some sixteen miles in length, but the comparatively small number of wounded testify to the thoroughness with which the troops are entrenched. Every day the trenches are under fire; especially at night we can hear the jar of bursting German shells, and the sound of the French shells sent whizzing back in answer.

If there were any serious attempt to gain ground in our section, we should be swamped with wounded; as it is, just enough come in to keep the beds comfortably filled. We have only thirty patients at present, but we have some 20 beds vacant and a new barracks now being built will give 25 more.

Most of the wounds are from shrapnel, shells, or bombs. Occasionally a man comes in who has been drilled by a rifle ball.

The most interesting cases which I have seen so far are worth mentioning. One young chap was struck by a shrapnel ball about the size of a marble. The ball entered at the right costo-vertebral angle, fractured the laminae of the 11th and 12th dorsal vertebrae, struck the left kidney, nicked the spleen, perforated the diaphragm, injured the left lung and lodged just beneath the skin of the left axilla. The surgeon under whom I am working had done a laparotomy before I arrived; later, I helped him do a laminectomy. Today we drew off 500 c.c. of thin, bloody, urinous smelling fluid from the left chest. The boy is doing well, although he is paralyzed below the waist. His cord appeared intact, so we hope for a recovery.

The second man was struck by a rough piece of shell the size of an almond in the second interspace just to the right of the sternum. X-ray showed it in the mediastinum, apparently, at the level of the third rib. At operation, the mediastinum was opened from in front, but search as thorough as seemed wise, considering the structure of that region, failed to show it. The man died two days later. Autopsy showed the fragment in the pericardium, resting upon the aorta, surrounded by a small abscess. There was general fibrinous pericarditis, and the right pleura was full of bloody fluid.

It seems that it is very easy to keep these wounds clean if they are thoroughly dressed within the first 24 hours. The slimes formed by the projectile, however, becomes lined with a black, dry slough which takes a long time to clear up. The chief disinfectants which are used in wounds are hydrogen peroxide, tincture of iodine, and a solution advocated by Carrel, who by the way is at Compiègne, composed of sodium hyposulphite with boric acid added. Hypochlorous acid is set free, according to the London *Lancet* of August 14th. This is a powerful antiseptic, but seems to have a deterring influence upon granulation.

The patients themselves are, as a rule, splendid, simple-hearted fellows, and it is a pleasure to look after them. Notwithstanding the very real horror and uselessness of the war, the tragedy of promising young men maimed or killed, one finds much that is admirable—much patriotism, great courage—woven into its complex web.

Yours very truly,

G. G. S.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING SEPT. 11, 1915.

No contributions for the week ending Sept. 11, 1915.	
Previously reported receipts.....	\$7514.84
Previously reported disbursements.....	7310.04

Balance \$ 504.80

F. F. SIMPSON, M.D., *Treasurer*,
704 Jenkins Arcade Bldg.,
Pittsburg, Pa.

EXAMINATION FOR BOSTON SCHOOL PHYSICIANS.

A competitive examination of applicants for the position of School Physician under the Boston School Committee will be held on September 23, 1915. The salary will probably be \$500 per annum. This examination will be held for the purpose of establishing an eligible list from which names will be certified to fill from thirty-five to forty vacancies existing at present and similar vacancies as they may occur.

Only registered physicians who are citizens of the United States and who have been residents of Massachusetts for the past year and of Boston for the six months last past have a right to apply.

The subjects of the examination will include a sworn statement of training and experience, practice of medicine, and hygiene.

Successful applicants may also be required to undergo a physical examination. Men and women desiring to take this examination may secure application blanks by applying, in person or by letter, at the office of the Civil Service Commission, Room 152, State House, Boston.

By order of the
MASSACHUSETTS CIVIL SERVICE COMMISSION,
WARREN P. DUDLEY, *Secretary*.

RECENT DEATHS.

DR. CHARLES P. BECKER, who died recently of nephritis in New York, was born in that city in 1844. He received the degree of M.D. in 1861 from the Long Island Medical College and practised his profession until his retirement in 1900. He was for many years an associate editor of the *New York Medical Journal*. He is survived by two sons.

APPOINTMENT.

DR. H. G. Earle has been appointed professor of physiology at the University of Hong Kong.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The twenty-fifth annual session of the New York and New England Association Railway Surgeons, celebrating the quarter century anniversary of the organization of the association, will be held at a Hotel Astor, New York City, October 21, 1915, under the presidency of Dr. W. H. Marcy, of Buffalo, N. Y.

A very interesting and attractive program has been arranged. Railway surgeons, attorneys and officials and all members of the medical profession are cordially invited to attend.

GEORGE CHAFFEE, M.D., *Corresponding Secretary*,
338 47th Street, Brooklyn, N. Y.

The Boston Medical and Surgical Journal

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Address.

THE CHILD AND THE COMMUNITY.*

BY EDWARD O. OTIS, M.D., BOSTON.

THE CONFLICT BETWEEN NATURE AND CIVILIZATION.

NATURE and Civilization often appear to work at cross purposes. Civilization is all the time trying to accomplish the impossible, of having her cake and at the same time eating it. Nature always makes sure that her cake shall be preserved; and she has the advantage of man in that she can *create* as well as *destroy*. She can eat her cake and be sure of getting another. We, in our ignorance, attribute to Nature a kindly, beneficent attitude in dealing with life, while, if we look a little under the surface, we discover that in the consummation of her plans she is relentless, wasteful, and cruel; but she accomplishes her purpose without the per-adventure of failure unless we interfere with her.

One of the inexorable laws of Nature is the maintenance of a type of life which has once come into existence, and to be sure of doing this she sacrifices ruthlessly many other lines of the same type.

"So careful of the type she seems,
So careless of the single life,
That I consider everywhere
Her secret meaning in her deeds
And finding that of fifty seeds
She often brings but one to bear."

But she never fails to bring that one to bear.

* Read before the Advisory Council of the National Association for the Study and Prevention of Tuberculosis at Seattle, June 14, 1915.

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Maeterlinck, in his fascinating story of the "Life of the Bees," tells us how, after the nuptial flight has taken place and the one male out of thousands has been selected by the queen bee to be her mate, and the future generations have been provided for, the hundreds of other disappointed males are mercilessly massacred by the working female bees.

"And to serve that single issue
Lest the generations fail,
The female of the species
Is more deadly than the male."

Fabre, in his delightful accounts of insect life, tells of similar tragedies in the life history of other insects.

In the higher animal life, when man does not interfere, Nature shows the same tenacity of purpose in preserving at all hazards the genus though she is prodigal of single lives in doing so.

With man, in primitive life, many children are born; families are large. We see this among the families of immigrants in this country at the present time. In the Colonial days of simple living in New England, marriages were early and there were many children. It is the same among peasant families, for example, and generally among people of primitive habits.

Nature, undisturbed by the artificial conditions of so-called higher civilization, appears to follow, with man, her same general plan for the preservation of the race. She provides lives enough, so that, if many are lost, enough will remain to continue and increase the type—the race. We see this process of plentiful supply and great loss in the Chinese race, where sixty

per cent. of all babies die before reaching the age of two years, and yet enough are left to maintain and increase the stock.

Civilization, with its so-called culture, appears to contravene this law of Nature to provide enough lives so that, with the loss of many, a sufficient number will survive to continue and increase the stock. The higher we go in Civilization, the fewer the children. Nature says "quantity"; Civilization says "quality"—and loses. We see on every hand the higher types of man decreasing. This is markedly the case at the present time with the old American stock. The old New England families are rapidly dying out. Boston, the ancient centre, one may say, of the pure American race, is now seventy per cent. or more foreign. We cannot, apparently, save the most cultured of our race. The very means we take to produce the intellectually most fit (higher education, careful and prolonged training, refined environment, and all the arts of a higher civilization) appears to defeat its own purpose, by more or less rapidly rendering that higher type incapable of reproducing itself in sufficiently large numbers to maintain and increase its kind. It is a startling and sad fact, but a fact it seems to be.

It is, then, largely to the families of the newer Americans, to the present lower grades of society, that we must look for the future maintenance of our American white population. Our problem is to contravene Nature's law, with regard to man, and see how many of the children in the prolific families of the lower grades of civilization we can save, which Nature, in her prodigality, would allow to be destroyed, permitting only the physically fitted to survive. It is a problem for the community, of the highest economic importance as well as a humanitarian one. As Huxley says: "The influence of that which is ethically best, what we call goodness or virtue, is directed not so much to the survival of the fittest as to the fitting of as many as possible to survive."

EUGENIC MARRIAGE LAWS.

In the first place, the community is beginning to realize that diseased and physically unfit men and women should not be allowed to marry and produce diseased and physically unfit children. In two states, at least, so-called eugenic marriage laws have been enacted. Both for the child's sake and for the sake of the community who have to care for the defectives, such a law seems just and reasonable. It is a significant fact bearing upon this point, that the most important causes of infant mortality in New York City, as stated by Dr. Baker, chief of the Division of Child Hygiene of the Department of Health, in 1913, are the so-called congenital, inherited diseases, the deaths from which diseases occurring during the first month of life, amount to thirty-five per cent. of the total deaths under one year.

CARE OF THE INFANT.

To ensure a healthy child, pre- and post-natal care and training of the prospective mother is essential, and in many communities this is now done in connection with the lying-in hospitals, or, as in Boston, by the Child Hygiene Department of the Board of Health and other private instrumentalities through visiting nurses who instruct the future mothers in personal hygiene, the general care of pregnancy, and in their own and their babies' care after confinement. The Caroline Rest Training School for Mothers, conducted by the New York Association for Improving the Condition of the Poor, is an excellent example of this kind of welfare work.

All communities now recognize the importance of the preservation of infant life, and in all the large cities, at least, there are many agencies at work to accomplish this, some public and others private. Milk stations, with visiting nurses, infant hospitals and dispensaries, welfare stations, departments of child hygiene of city or state boards of health are some of the instrumentalities. In Boston the Milk and Baby Hygiene Association gives care and exercises supervision over a fifth of the baby population of 20,000 up to one year of age. This it does through milk stations or centres where weekly clinics are held with the mothers, and from which nurses go out and visit the homes regularly. In 1914 there were 2007 deaths of babies under one year of age, or 103 per 1000. Of these, sixty per cent. occurred under three months of age.

Although this is the lowest infant mortality of any city in this country except New York, which was ninety-four per 1000 for the same year, yet it is still too wasteful; for, as Dr. Emmons¹ has recently said, "The occupation of being an infant in Boston is more dangerous than being a soldier in the European war." New Zealand leads the world in its low infant mortality, which is fifty-one per 1000, and this remarkable result has been accomplished in large part, says Dr. F. Truby King, through the teaching of mothers pre-natally, post-natally, and later through the milk station.²

First and foremost, the mother should be taught the immense importance, for the present and future well-being of her child, of breast feeding, and that no kind of artificial feeding can compare with it.

CLEAN MILK.

When the baby is weaned, the mother, by ocular demonstration, should be shown how to prepare the milk for that purpose, and afforded opportunity for obtaining clean milk, either raw or pasteurized, and this is now generally possible through the milk stations in the cities. Nothing is of more vital importance in the preservation of the life of babies and young children than the protection of the milk supply. Their

¹ BOSTON MED. AND SURG. JOUR., April 29, 1915.

² Care of Prospective Mothers. *Ibid.*

chief source of food, either by certifying it to be clean, from inspected cows, dairies and wherever milk is sold, or else furnishing it in a pasteurized form.

This duty is now recognized in the sanitary code of most well regulated cities. It has been a long fight in the State of Massachusetts to obtain adequate milk inspection laws. Hardly a Legislature passes that the contest is not waged in behalf of clean and safe milk; and it was only a few weeks ago that an efficient milk protection law was finally passed, but which was unfortunately vetoed by the Governor.

The public still needs further education in regard to this surpassing means of conserving infant life. Gastro-intestinal diseases are among the chief causes, as we know, of the high death rate of infants, and they are to a great extent preventable by the use of clean milk. Moreover, the price of safe milk should be within the means of those who can pay but a small sum for it, and it should be furnished free to the very poor, either by the community or through private instrumentality. It must always be insisted upon, however, that during the early months of infant life, no kind of milk, however carefully obtained and modified, can compare with the mother's milk.

After the mother obtains good milk, she should be taught how to take care of it properly at home, that it may remain safe, and for this purpose the distribution of free ice in summer is of great aid. "The infant death rate," says Sir Arthur Newsholme, "measures the . . . standards of morals and sanitation of communities"; and one may add that the provision of clean milk by the community is the one most important measure in reducing infant mortality. The community that does it has thereby established its standard of sanitation and its degree of civilization, for, as someone has well said, "infant mortality is the most sensitive index of the civilization of any community."

FOOD OF THE CHILD.

After the child has graduated from its milk diet, the community has still a duty in seeing that it is provided with proper food. Food inspection laws, so far as they are efficient, and the pure food law protect, to a certain extent, the sources of supply. Instructions in the wholesome preparation of food and food values is afforded through domestic science centres, visitors in the homes of the poor, and the teaching of domestic science in the schools. The mother is to be taught that good and nourishing food need not mean expensive food; but she must possess some elementary knowledge of food values and some experience in properly cooking it.

If the child is insufficiently nourished at home on account of ignorance or poverty, school lunches seem to be the obvious remedy, and the child should be encouraged to bring a few pennies for them; for the parents should be made to

feel that they are primarily responsible for the well-being of their own children.

It is surprising how much good food value can be obtained for a few cents. Here are some sample lunches served in the High Schools of Boston at cost price, providing about one-fourth of the required daily nourishment for boys and girls of fourteen years:—

TABLE I.

Baked beans	5 cents
Graham bread	2 "
Cocoa	3 "
	—
	10 "

Proteids, 23 grs.; fat, 23 grs.; carbohydrates, 80 grs.; Calories, 605.

TABLE II.

Creamed dried beef	5 cents
Lettuce sandwich	3 "
Milk	3 "
Cake	2 "
	—
	13 "

Proteids, 24 grs.; fat, 28 grs.; carbohydrate, 80 grs.; Calories, 682.

For girls of fourteen years:—

TABLE I.

Macaroni and cheese.....	5 cents
Graham bread and butter	2 "
Milk	3 "
	—
	10 "

Proteids, 22 grs.; fat, 22 grs.; carbohydrates, 65 grs.; Calories, 570.

TABLE II.

Creamed eggs	5 cents
Graham bread and butter	2 "
Cocoa	3 "
Sponge cake	2 "
	—
	12 "

Proteids, 19 grs.; fat, 21 grs.; carbohydrates, 80 grs.; Calories, 614.

SCHOOL INSPECTION.

When the child arrives at school age, communities quite generally now provide medical inspection and examination of all school children. In Boston such inspection is now very thoroughly administered by competent physicians acting under the Board of Health, assisted by nurses acting under the School Committee. The physician visits the school every day to detect any case needing urgent medical attention. In addition, he is required to make a yearly physical examination, and oftener if the chief of the division shall so order, of every pupil in the school districts, recording his results.

This examination is very thorough and a long list of defects and diseases is submitted, which the physical examination covers. Examination of the heart, lungs and spine over the clothing is not accepted. Notice of defects de-

teeted is sent to the parents or guardians of defective pupils. School nurses can take children, with the consent of their parents, to the proper dispensaries for treatment or operation, such as removal of adenoids or diseased tonsils.

Thus, from the time the child enters school until it graduates, the community exercises constant supervision over it.

In one of the recent annual reports of the Division of Child Hygiene of the Boston Board of Health, of 118,781 pupils examined, 77,931, or 68%, defects were discovered. The defects originating about the mouth, as defective nasal breathing, hypertrophic tonsils, defective teeth, defective palate and cervical glands were 100,236, or about 84% of all defects found. The dental defects were 51,340, or about 66%.

CARE OF CHILDREN'S TEETH.

Defective teeth furnish excellent foci for bacterial infection, and the tubercle bacillus among other micro-organisms. "Diseased teeth become human culture tubes with ideal culture media for the germs of disease."

What are communities doing to protect the teeth of children, in more than half of whom they are diseased? In Boston there has recently been completed a unique institution, the like of which does not exist anywhere in the world,—an institution to provide for the dental requirements of the children of the city, the gift of two brothers. It is called the "Forsyth Dental Infirmary for Children." It cost \$800,000, and is an imposing marble building, one of the ornamental structures of the city. In addition, an endowment of two million dollars is provided for its maintenance. Not only the care of the teeth is included in its functions, but related oral conditions, such as defective palates, adenoids, etc., and general oral hygiene and prophylaxis. Seven hundred and sixty-eight patients can be treated a day, or three treatments annually of 127,200 children. The staff consists of consulting, visiting and permanent dentists (the latter being paid), and physicians. There is a research laboratory, a museum, and a lecture hall. Complete work is done for each patient, and the child is followed up by the school nurse or some other instrumentality until the entire mouth is clean and healthy, including the nose and throat.

When one considers the opportunities for bacterial infection from diseased teeth and unhealthy oral conditions, and the suffering and disease induced in later life from the neglect of the teeth and mouth in childhood, the value of such an institution can hardly be overestimated. Every community should provide some such opportunity for the care of its children's teeth when the parents are unable to do so.

PLAYGROUNDS.

Another insistent demand of child life which the community is coming to recognize is an op-

portunity for play and recreation, and, through municipal or other instrumentalities, playgrounds with competent supervision are being established in our large cities. A rather novel plan was recently devised in New York City, where, during certain hours of the day, certain side streets were given over to the children, all traffic on such streets being suspended. Well-ordered play is not only the child's natural way of obtaining physical exercise, but it is in the highest degree educative, inculcating unselfishness, self-control and the value of team work,—lessons so valuable in the competitions and associations of after-life. One recalls the saying attributed to Wellington, that he won the battle of Waterloo upon the football field of Eton.

Auxiliary to playgrounds are sand gardens for young children. Many states and municipalities also provide public gymnasiums, baths and bathing beaches, used alike by children and adults.

THE CHILD AND TUBERCULOSIS.

Most authorities now believe that the majority of cases of tuberculosis in adult life become infected in childhood. Thus Hamburger has demonstrated that latent tuberculosis is present in 71% of children from seven to ten years of age. "Our greatest hope for ultimate success in the suppression of tuberculosis," said recently the State Commissioner of Health of Massachusetts, "must lie in the prevention of the development of tuberculosis in the child with a predisposition for, or latent infection of, tuberculosis."

Although open pulmonary tuberculosis is not so frequent in childhood as in adult life, closed tuberculosis is more so, and this form, which is often difficult of diagnosis and is frequently denominated the "pretubercular" stage, may be only suspected by the presence of anemia, malnutrition and debility. For the majority of such children the open-air schools, with intervals for rest and additional nourishment, offer the widest opportunity and are generally sufficient. I am happy to say that such schools are rapidly coming into existence throughout the country. For other children, a continuous open-air life in the country is desirable; and for those in whose home a case of tuberculosis exists the safest way is their removal from the dangerous environment. For this purpose so-called preventoria have been established, an excellent example of which is the one at Farmingdale, N. Y., to which children from New York City are sent.

Either by the establishment of such preventoria or by other means the community should protect its children who are exposed to tuberculosis in their homes. It is a general custom now in all tuberculosis dispensaries to submit all the children of a family in which a case of open tuberculosis is present to a careful examination, for Dr. Sachs has shown that in the

examination of such children 28% between the ages of five and ten years, and 25% between ten and fourteen years show evidence of tuberculosis. In 600 patients from the state sanatoria of Massachusetts there were 966 children under fifteen years of age in their immediate families. Of these 362, or 38%, were examined, and the number found to have consumption was 10%. "The fact stands beyond a doubt," says Prof. Nietner, "that in a very large majority of cases the source of infection is the human subject suffering from 'open' tuberculosis, and that infection is effected through the close intercourse resulting from family life within the walls of the home."

The French "League for the Preservation of Children from Tuberculosis" has for its main object the removal of children from homes where they are exposed to infection, and Prof. Grancher, who established the League, says he was moved to do this from the remark of Pasteur in regard to the diseases of the silk worm, that in order to save a race that is threatened by an infectious disease, the best plan is to save the cocoon.

A very interesting experiment was inaugurated several years ago in New York, in the so-called "Home Hospital." A family in which a case of tuberculosis exists is removed entire to this institution, where they live under the best hygienic conditions. One of the chief objects of this experiment endeavors to accomplish is stated to be, "to prevent the spread of tuberculosis from the afflicted to well members of the family, particularly to protect the children from infection."

When a child is found to be actively tuberculous, sanatorium treatment should be provided as in the case of adults. This is already done in many communities. The Boston Municipal Consumptive Hospital has a department for children, and so does one of the state sanatoria of Massachusetts, in both of which school instruction is given when the child's condition permits.

A not infrequent form of tuberculosis in children is that of the glands, bones, joints, spine, and tubercular peritonitis. There is a difference of opinion as to the cause of infection in these cases, but undoubtedly the bovine tubercle bacillus conveyed in milk is the causative factor in some of the cases. This is an added reason why every means should be employed to safeguard the milk supply. Children suffering from these forms of tuberculosis should be provided with sanatorium treatment, either in the country, or better, when possible, at the seaside. Rollier's Sanatorium in Leysin, Switzerland, is a striking illustration of the effects of mountain air and heliotherapy; and the Sea-Breeze Sanatorium at Coney Island, New York, illustrates the value of sea-air and sunshine. Not far from this institution the city of New York has acquired a location with 1000 feet of beach, at a cost of \$1,250,000, where there is in the process of erection a sea-side sanatorium for surgical tuber-

culosis in children, to accommodate 1000 patients, at a cost of \$2,540,000.

CHILD LABOR.

Excessive child labor in mill and factory under an unhygienic environment is a potent means of developing the child's latent tuberculosis or rendering him susceptible to a new infection. Laws have been enacted or proposed upon the subject in almost every state, and in many instances the fight for the adequate protection of the child from such exploitation has been a stubborn one. That the growing child should be subjected to the strain of long hours of the grinding monotony of mill work is manifestly a short-sighted policy, as well from an economic point of view as from a humanitarian one. Not long ago a committee of the Legislature of one of our states agreed that the eleven-hour day was the proper working period for ten or twelve year old children! What opportunity do children thus treated have to develop into vigorous manhood or womanhood? That the child, with its beautiful innocence and trust beyond knowledge, for whom, as someone has said, "the gates of heaven swing inward," should thus be despoiled of its divine heritage of natural child life is a disgrace to our present civilization!

HEALTHY HOMES.

The community again has a duty in the housing of its children. A child should have sunlight, fresh air and cleanliness in its home; for "where the sun enters not, there the doctor comes." Slums with crowded tenements are not inevitable even for the poor, and through boards of health, tenement house inspection and building laws, it is possible, I believe, to provide wholesome dwelling places for the children of the wage-earner even in the large cities. Unsanitary, sunless and ill-ventilated dwellings, where many are crowded into a small space, are favorable conditions for developing the tuberculous child, as abundant evidence has demonstrated.

THE SPIRITUAL DEVELOPMENT OF THE CHILD.

The comprehensiveness of my subject permits me to include almost any and every endeavor which it is the province of an intelligent community to make for the conservation of child life. In conclusion, however, I desire to advert to but one other subject which, it seems to me, should have consideration by the community. When we have provided for the physical well-being of the child and its mental training, there is a third and equally important duty of the community, in my opinion, and that is to offer the child means of spiritual development in the years when its imagination is so active, and it lives so much in the realm of fancy. Ideally, the home and the church are the places and the instrumentalities for doing this; but the home often fails in this duty and, in consequence, fails

to invoke the aid of the church. If we believe that Christianity is the foundation of character, and that character in the individual establishes the character of the community, and that a community of Christian ideals will best protect and conserve its child life, it is, then, of supreme importance that the community should afford opportunity to its children of religious instruction and training. I can see no other way of doing this in a communal way than somehow through the medium of the public schools. A community imbued with an altruistic, a Christian, spirit, can be depended upon to care for its children, and needs not to be coerced by law to do certain things needful for their welfare, or deterred by the menace of punishment to refrain from doing things harmful to them. The spirit of the community will dictate the actions of the community, and if a community believes the words of the Master relative to the child, that "of such is the kingdom of heaven," it will guard and protect the child so that it may grow towards physical and moral perfection, an exemplar of the Christ-child.

CONCLUSION.

The child, with its innocence, its faith, its mysticism, nay, its very ignorance, should appeal, if anything can, to the very best instincts of the community, as well as to its selfish interests, for the child of today makes the community of tomorrow. Whatever the physical, mental and moral education of the child is now will be reflected in the character and standards of his day when he transmutes his present training into action. "It would be a dreadful calamity," said ex-President Roosevelt, "to continue to waste and destroy the resources of the nation, as until a few years ago we were wasting and destroying them, as we still, in certain respects, continue to waste and destroy them. But it would be even a worse calamity, because irremediable, if we wasted and destroyed the manhood and womanhood of the nation. And the only way permanently to conserve the manhood and womanhood is to conserve the childhood."

Original Articles.

TRANSVESICAL PROSTATECTOMY: A DISCUSSION OF SOME UNSETTLED POINTS IN THE PREPARATION FOR AND TECHNIC OF THE OPERATION.*

BY PAUL M. PILCHER, M.D., BROOKLYN, N. Y.

THE occasional surgeon, or the surgeon unacquainted with the science of urology other than as it crosses his path in the operating room, does not need to discuss the disputed questions

concerning obstruction at the neck of the bladder due to prostatic hypertrophy or distortion. To this sort of man a complete examination of the patient is not necessary. All that he needs to know is that there is an obstruction at the neck of the bladder, that it is probably due to an enlarged prostate, and that it can be removed surgically.

If he is lucky his patient will survive his operation, with the chances of more or less permanent disability. This is sufficient for some men. To others of us who have passed through the developmental stage of prostatic surgery, who can look back upon an uncontrolled hemorrhage, the unexplained death of some patients whose good general appearance lured us into a state of false security, we feel that we need a great deal more information in order that we may know beforehand what to expect in a given case and to choose, if may be, the safest course to pursue under the circumstances.

To my mind, a thorough examination is most essential. I believe that we should determine, if possible, before operation whether the obstructing prostate is due to cancer, or to simple adenoma; whether there is a stone present in the bladder; whether the symptoms are due to the presence of this stone or not; whether there is a new growth present in the bladder. I have seen all of these conditions in cases in which I had expected to find only a simple hypertrophy of the prostate, the mistake being due, I believe, to my own carelessness in not making a thorough and exhaustive, but not exhausting, examination of the patient.

Aside from the ordinary vesical examination at our clinic, we employ first the x-ray to determine the presence or absence of stone in the bladder. Sometimes we are able to determine the outline of the prostate.

Next, we pass a simple examining cystoscope, such as that devised by Wappler especially for this work, constructed with a beak curved like an ordinary sound. We find we are sometimes able to introduce this cystoscope into the bladder when catheters fail. A thorough cystoscopic exploration is made, if possible.

Both the cystoscope and the x-ray are of advantage in that a stone may be hidden in a diverticulum and not be seen by the cystoscope. In these cases the cystoscope also determines the presence or absence of a new growth.

CANCER OR ADENOMA.

Rectal Examination is important in helping us to determine between cancer and adenoma. We suspect cancer in all patients under 60 years of age, who have had any considerable degree of obstruction. We have had cases of adenoma in men between the ages of 55 and 60, but very few in number. We suspect cancer when the symptoms are rapid in their onset. By that I mean have been complained of only for a year in older patients. It has been our experience

* Read at the winter meeting of the New England Branch of the American Urological Association in Boston, on March 30, 1915.

that the patients with the longest histories of frequency of urination, etc., are the least apt to have cancer of the prostate.

Primary tuberculosis of the prostate has been met with in one patient of 55 years of age. It simulated cancer in its general characteristics.

There are other differential points which it is not necessary to go into at present, but from the standpoint of treatment as adopted at our clinic, it is quite important for us to know beforehand, if possible, whether the case is one of malignancy or simply adenoma.

I believe it is universally accepted that all cases of prostatic obstruction should receive more or less preliminary care. The question of what form this treatment should take has not as yet become standardized, but in the majority of cases it has resolved itself into a question of drainage of the bladder; either using a catheter to empty the bladder at regular intervals for a given period of time, the use of an indwelling catheter, or the establishment of suprapubic drainage by means of a cystostomy.

CHOICE OF METHOD FOR RENAL DECOMPRESSION.

As a temporary expedient intermittent catheterism is simple and efficient. Its dangers include the possibility of septic infection, which in certain individuals is a minimum risk, but in the majority of cases the continued use of a catheter

is sure to result in a train of septic consequences of the most serious character. Again, there is the danger of profound constitutional reaction, which has been occasionally observed following the simple use of a catheter, so profound in some cases as to terminate in death in a few hours. Occasionally in some cases each attempt at catheterism is followed by a more or less septic condition. These observations refer more especially to the advanced cases of prostatic obstruction where cystitis is present and the obstruction has existed for a sufficient time to cause renal insufficiency and more or less invalidism. Intermittent catheterism used early for the beginning stages of chronic prostatism is almost devoid of danger.

The *catheter a demeure*, where it can be tolerated, is free from criticism, other than the unnecessary amount of irritation of the urethral mucosa which results from its presence in the urethra. It must always be remembered that danger accompanies any method which might bring about a sudden emptying of the bladder that has been distended for any length of time.

Suprapubic cystostomy is attended by the dangers common to all minor surgical operations; it can be done entirely under local anesthesia, with practically no surgical shock attending it. It completes the first step of the operation of transvesical prostatectomy and affords

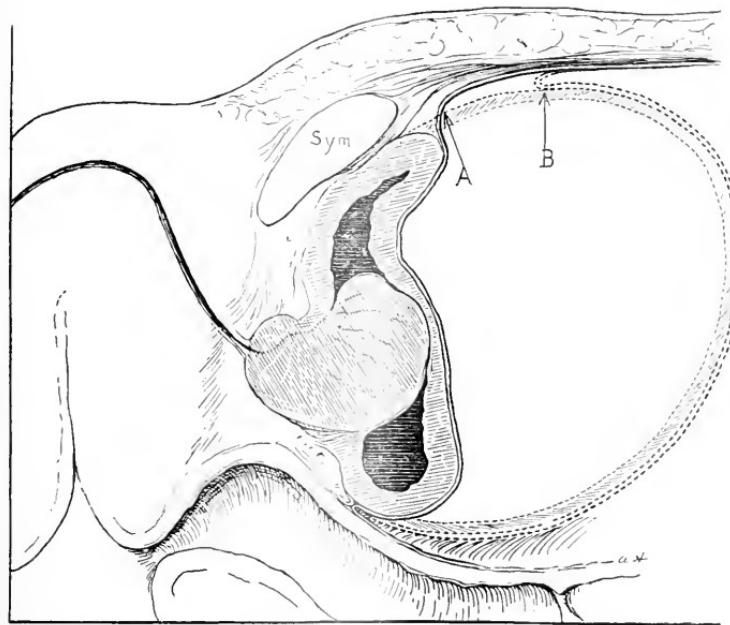


FIG. 1.—Showing the surgical problem. Special attention should be directed to "A", the fold of peritoneum in its relation to the symphysis when the bladder is contracted. "B" the raising up of the peritoneal fold when the bladder is dilated. The relation of "A" and "B" to the symphysis is quite variable and in some is fixed almost at the symphysis.

temporary relief to urinary prostatic obstruction, while the best general and local conditions are being secured for the later radical removal of the obstruction itself. It is free from any reflex effects which attend the introduction or residence of a catheter in the urethra. It has still further the advantage not only of easy and adequate urinary drainage, but also of placing at rest the urethral tract and of being the most powerful agent in overcoming any reflex influence which the irritation of that tract may previously have been producing. Furthermore, if a foreign body is present in the bladder it may be removed at this time, without the added disadvantage of surgical shock. The tissues through which the bladder is explored, are exposed to infection, without the depressing systemic effects which accompany a major operation.

In advanced cases, we believe that repeated catheterism is wrong. We do not object to the indwelling catheter under certain conditions, and at times feel that it is distinctly indicated, especially in those cases where there is an enormous distention of the bladder with edema of the legs, and as a routine when there is an enormous over-production of urine. In the presence of intravesical hemorrhage, advanced infection, or large calculi, we feel that suprapubic cystostomy is the method of choice as a preliminary to transvesical prostatectomy.

At our clinic we perform a suprapubic cystostomy as a preliminary operation in every case of prostatic hypertrophy due to simple adenoma, even though we have used an indwelling catheter previous to this.

The chief objection to the two-stage operation

has been the discomfort due to leakage of urine over the abdomen of the patient. This has been overcome at our clinic by adopting the following technic:—

Operative Technic of First Operation. Preferably with the bladder filled with fluid, a suprapubic cystostomy is done under local anesthesia, using one-half to one-quarter per cent. novocain solution to infiltrate the tissues. The points of the technic which we emphasize are: 1. Exposure of anterior surface of bladder as high up as possible. 2. Making opening in bladder at least three inches from urethral opening (Fig. 2). 3. Drainage of bladder by Pezzer catheter or Pileher modification. 4. Purse string suture around opening in bladder to secure water-tight joint (Fig. 3), employing same principles as in drainage of gall bladder. 5. Immediate resuturing of suprapubic wound, obliterating prevesical space, reconstruction of the facial planes, etc., and closing the wound without drainage except where button drainage tube emerges. (Figs. 4 and 5.)

Results. 1. Primary union of wound in practically every case.

2. Absolutely dry wound without any leakage of urine.

3. Complete control of urine for tests.

4. Patient out of bed in 24 hours.

5. Half of the operation complete without anesthesia or surgical shock.

Question of when to operate. Our rule is that as soon as the bladder can be safely emptied the suprapubic cystostomy should be done. In all cases of emergency, where there is active hemor-

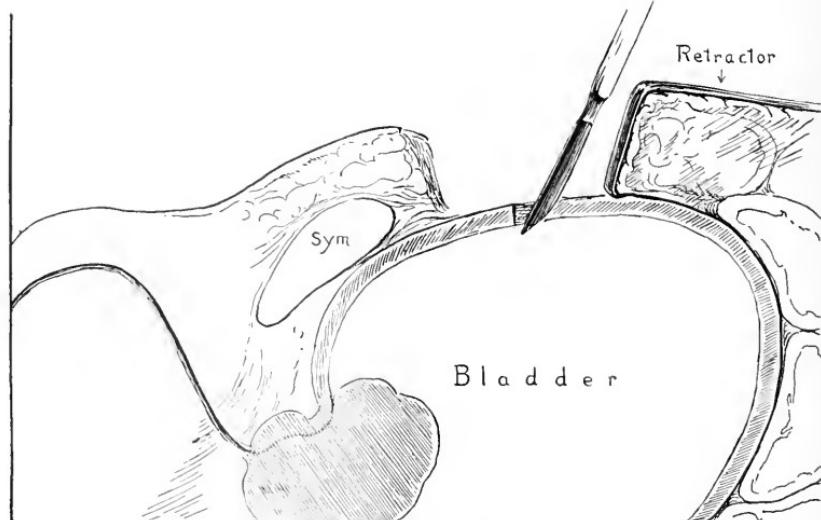


FIG. 2.—Showing the position of incision into the bladder preferably at a point three inches from the urethral opening. The peritoneal fold has been reflected high up.

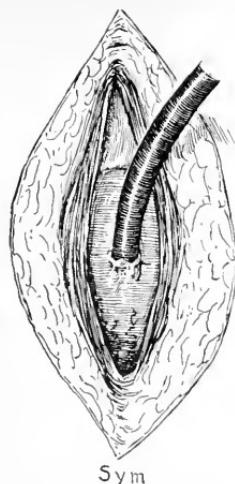


FIG. 3.—The Pezzer or Pilcher catheter secured in anterior wall of bladder held in place by purse-string suture, secured similarly to tube in drainage of gall-bladder.

rhae into the bladder, suprapubic cystostomy should be done.

How long shall we wait before removing the prostate? In some cases we can determine within two or three days that any time will be suitable for removal of the prostate. In other cases

we feel equally sure that the prostate could never be safely removed. In general, after a suprapubic cystostomy has been performed and the patient is out of bed, if his general bodily functions are working well, his mind is bright, his eyes are clear, his urine is nearly normal, of good specific gravity, containing only a trace of albumin; when the phthalein test shows an efficiency of from 30 to 50%; when the patient is sleeping well and eating well, we feel perfectly safe in removing the prostate. We prefer, as a rule, to wait eight or ten days after the first operation in order that we may have a more perfectly healed suprapubic wound through which to work, for under these circumstances we have a shorter convalescence and the urinary fistula closes more quickly.

Another thing which I believe is quite important is that one should never try the second operation unless he can have a patient under *observation* more or less continuously for the 18 hours following the operation. In other words, we should not perform the operation out of town at so great a distance that we could not reach the patient within an hour.

In the more advanced cases where there is a severe depression, in what we have termed the second stage, the problem is not quite so easy. We may have to wait weeks or months before we feel that the patient is in proper condition for his second operation.

In studying the question of renal functions,

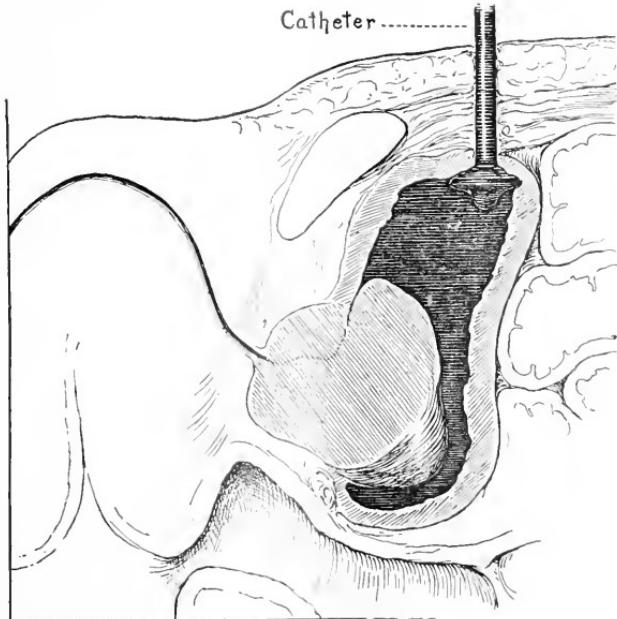


FIG. 4.—A bladder drained by Pezzer or Pilcher catheter showing wound entirely closed about catheter and the relation of catheter button to prostate. This method drains the bladder completely without any leakage.

we have found that there are *two distinct factors* which are helpful in determining the probabilities of recovery. People seem to forget the fact that the kidney is not the only organ upon which life depends, and, if we find that the renal function is sufficient, the patient may die from vascular disturbance, cardiac failure, apoplexy, surgical shock or any one of the different disturbances.

In trying to determine, however, the functional sufficiency or impairment of the kidney, we recognize three distinct factors which may be roughly designated pre-renal, renal and post-renal periods. These factors have been discussed in other papers. The phthalein test gives us the index of renal sufficiency at a given time, and a series of phthalein tests taken under varying conditions,—pre-operative, post-operative and during the convalescent stage, gives us an index of the stability of renal sufficiency, so that in each of our cases we must determine, if possible, both of these indices, that of efficiency and that of the stability of the renal sufficiency. We have learned that, when the renal efficiency is very low, that is, below 5 or 7% in two hours, it is very unsafe to attempt a prostatectomy.

The speaker showed a series of lantern slides demonstrating the various features of the two-stage transvesical operation, showing first the technic of the first operation, charts of individual cases used in determining the time for the

second operation, the technic of the transvesical prostatectomy pointing out the methods employed at the Pilcher clinic for enucleating the prostate, emphasizing the importance of removing all débris from the bladder and searching for small prostatic stones which might have been left in the bladder, then describing the suprapubic drainage following the second operation in which a large calibre drainage tube is used for 24 hours. This tube is removed after 24 hours and a button catheter inserted in its place. This button catheter controls the output of urine from the bladder within two or three hours and again the patient remains dry.

In discussing the control of hemorrhage the speaker recommended the use of the Hagner bag and presented a modification of his own, which consists of a bag through which a catheter is led out, which drains the bladder from below.

The most important step which has been worked out after the second operation consists in removing the drainage tube after 24 hours and inserting the button catheter in the bladder, and draining through the button catheter for three days, and then putting a cork in the button catheter and having the patient empty his bladder voluntarily every hour for a period of three or four days, then removing the button catheter, and it will be found that the patient continues the urination. This has been a very great step in advance at the clinic.

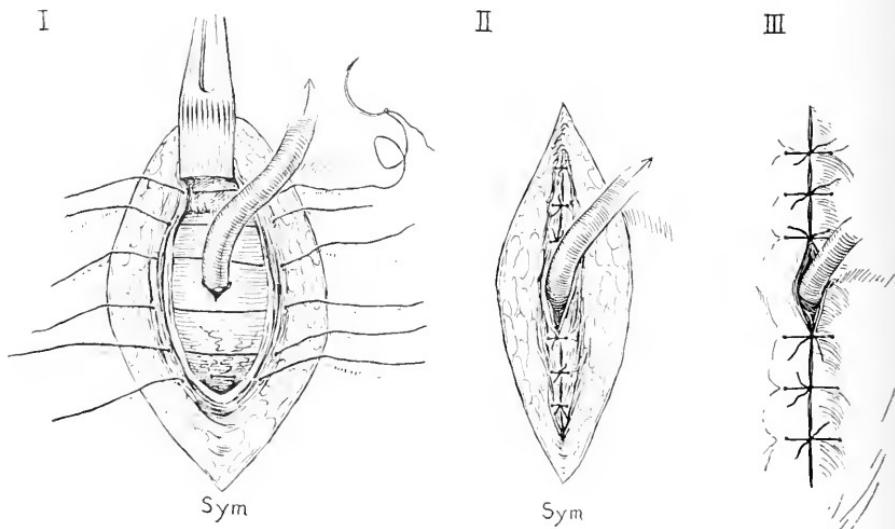


FIG. 5.—Various stages in closing of wound after suprapubic cystotomy.

- I. Placing the first sutures, the lowest suture closing off the prevesical space and including wall of bladder, the second and third sutures drawing together the rectus fascia and the upper three sutures drawing together the fascia below the peritoneal fold.
- II. Further tying of sutures and closing the wound tightly around catheter.
- III. Suturing the skin with silk. Closing wound around catheter without drainage. These wounds heal almost invariably without infection.

A STUDY OF THE EFFECT OF ROWING ON THE HEART.

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AND
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AN abundant and somewhat contradictory literature has grown up concerning the effect of exercise on the heart. Shumacher and Middleton¹ give an extensive bibliography and a brief résumé of some of the more important work. One of the most important aspects of this disputed point is the effect of our present rather elaborate system of competitive college athletics on the heart. Shumacher and Middleton, in a study of athletes at the University of Wisconsin, incline to the view that athletic training at first leads to physiological hypertrophy, but when prolonged and marked by severe athletic contests it usually leads to hypertrophy, plus dilatation of a variable degree, frequently marked by valvular insufficiency. While they grant that the hypertrophied heart, even when dilated and giving distinct evidence of valvular insufficiency, may prove more fitted to carry a man through a severe athletic contest than a normal heart, they believe that the so-called "athletic heart" is a distinct disadvantage to normal human activities. On the other hand, James MacKenzie² of England, with his wide experience in cardiac disease, seriously doubts the existence of any such pathologic condition as the so-called "athletic heart." MacKenzie maintains that "the evidence on which the heart's impairment was based was those manifestations of murmurs or irregularity which my experience had shown to be perfectly consistent with a healthy heart." Cabot³ analyzed 600 successive and unselected cases of patients with the signs of a failing heart with the purpose of determining the etiologic factor. In no case was he able to attribute the cardiac impairment to athletics or immoderate exercise.

Perhaps the most constant assertion of the believers in "athletic hearts" is that these hearts are enlarged. The evidence of enlargement has been based usually on percussion outlines, but more recently on Roentgenologic data, and sometimes on both, as in the work of Shumacher and Middleton. There are serious objections to evidence based solely on percussion findings. In the first place the accuracy of percussion can be questioned, as a comparison of the normal percussion outlines as given by various standard text-books shows. In the second place, a very large element of personal equation is introduced. The Roentgenologic examination, even as perfected, has also certain drawbacks. Posture, breathing, the distance of the x-ray tube,—all distort the cardiac picture. For example the size and shape of the heart is quite different in forced inspiration and in forced expiration. Again, the x-ray tube will project a

shadow of much larger size when near the heart than when distant. However, it has been determined that with the x-ray tube seven feet distant no appreciable error is introduced, since the rays at that distance are essentially parallel. It has further been determined that during quiet breathing, that is, in the absence of forced inspiration and forced expiration, the contour of the heart is constant. It seems, therefore, that with this method, certain reliable data ought to be obtained. That is the method which we have used in this study. We have omitted purposely in this particular study the effect of a single athletic contest on the size of the heart. We have also omitted the effect of a single period of training. The important consideration as we see it is—does prolonged participation in athletics cause a permanent enlargement of the heart? It must be granted that participation in violent athletics may cause other impairments than increase in size. Unfortunately, at the present time there seems to be no adequate discriminating criteria of those impairments other than the well known methods of auscultation and blood pressure determination. Furthermore, our evidence is based on individuals who have participated in one form of athletics, namely, rowing, since by common consent rowing has been supposed to have been the most conspicuous cause of athletic hearts. Our individuals have been trained under a uniform system and under careful medical supervision. It is possible that the results which hold in Harvard University are not applicable to other conditions, in other universities and elsewhere.

For the purposes of study three groups were selected. Group I consisted of sixteen freshmen, who were chosen for two reasons: (1) they were essentially of the same build as individuals of the other group who had already participated in hard rowing contests; (2) it is hoped by repeating the observations on Group I throughout their college course, especially if some of them participate in strenuous athletics during that time and some do not, to secure more definite data. All the members of this freshman group were individuals of the vigorous type of young manhood. As is common in such types, all had been rather active in physical exercise, a few had rowed previously.

Group II consisted of 16 candidates for the university crew, 3 were seniors, 8 were juniors, and 5 were sophomores. The five sophomores rowed in the class crew race in June, 1914. Four of the 16 had rowed in a varsity four mile race. Six had been on the Harvard second crew that went through the same preliminary period of training for the four-mile race, but raced at Henley, England, in July, 1914. Therefore they were all athletes with a definite period of athletic activity behind them. The third group consisted of ten graduates; this group averaged over ten years of rowing. All had rowed in a four-mile intercollegiate race in their college years and all had been active in competi-

tive rowing since graduation. Seven were members and one a substitute in the Union Boat Club crew that raced at Henley in July, 1914. The other two were men who had participated in many rowing races since graduation.

On physical examination there were no irregularities in heart action in any of the groups. On a single examination there were no blood pressure observations that could be interpreted as abnormal. The urines of all were free from albumen and sugar. None of the three groups presented any evidence of cardiac enlargement by the usual methods of percussion and auscultation. One of Group I, that is, the freshmen, presented a murmur which was interpreted as functional. One of Group II presented a similar systolic murmur. Two of Group III presented very slight functional murmurs. Some of each group were supposed to have athletic hearts. None of these had murmurs.

The Roentgenological examinations were made during February and March, 1915, before the active rowing season. The examination was made under identical conditions by the method previously stated. The pictures were all taken standing and the x-ray tube was carefully placed on a level with the mid-portion of the thorax at the seven-foot distance. In addition fluoroscopic examinations were made in each case, but showed no abnormality. By the use of calipers the antero-posterior and lateral diameters of the chest were determined in the line of the nipples.

The appended tables show the details. Groedel's table, giving the average size of the heart in male adults of a similar height, is also appended. Groedel used the orthodiagraph method, which in our hands has not given so satisfactory results in regard to accuracy as the seven-foot plate method. Furthermore, Groedel's method gives a slightly smaller reading than is obtained by our method. Groedel utilizes in his table all types of individuals of a given height and strikes the average. It has seemed to us that it is reasonable to suppose that muscular types should be compared with the same types with and without athletic competition. We hope to establish later a standard for different types. With the present wide prevalence of various athletic activities it has been impossible to obtain any considerable group of that type, since practically all of them at some time had participated in athletics to a certain extent that would render their use as a standard open to criticism on critical analysis. One individual is included who had never participated in any athletic contest, even in his school days and who had for many years taken very little exercise. He is included as giving an interesting, but not important comparison.

From the tables it will be seen that the freshmen show an average width of the heart of essentially 13 cm., varying from 11.5 cm. to 14.2 cm. The varsity candidates show an average width of 13.85 cm., varying from 12.7 cm. in a junior to 15.1 cm. in a sophomore. The grad-

uates give an average width of the heart of 14.04 cm., varying from 11.5 cm. to 15.5 cm. The non-athlete shows a width of 14 cm. Groedel's average is 13.2 cm. It will be seen that the hearts of the younger freshmen are somewhat smaller in width than those of the varsity candidates or the graduates. The difference between the varsity candidates and the graduates is surprisingly small, .19 cm. or 1/13 of an inch.

In a similar way a comparison of the length of the heart shows that Groups II and III are very close and the freshmen show hearts that average somewhat shorter, although even here the freshman length is greater than the normal average, as obtained by Groedel's method. The non-athlete had a short heart, well below Groedel's average and considerably below the average of all the groups.

The width of the aorta was also measured and showed similar findings, namely, Groups II and III were very close, and the freshmen group gave a reading slightly smaller.

It is apparent then that there is no real difference between Groups II and III, although Group III averages 8 years older and averages several years more of strenuous athletic participation. The increase in age and increased athletic activity has had no effect upon the size of the heart. The freshman hearts are slightly but definitely smaller than the other two groups. The difference can hardly be attributed to the difference in weight or height, because those differences between the two groups are too slight. The freshmen are, of course, the youngest group, but there is much less difference between the average age of the freshmen and the average age of the varsity candidates than between the varsity candidates and the graduates. An important consideration, however, is—have the freshmen attained their maximum development both in regard to general skeletal and muscular development and also in regard to their heart? Anyone familiar with undergraduates appreciates the fact that the average freshman has not reached his maximum development. That would not necessarily hold true of these individual freshmen. Casual inspection, however, discloses that while the freshmen group are as tall and weigh as much as the varsity and graduate students, the freshmen are very apparently not so well developed or muscled. The measurements of the diameters of the chest taken during quiet breathing gives rather interesting information. The freshmen averages were 29.25 cm. and 19.34 cm., the varsity averages were 29.87 cm., and 20 cm., the graduates were 31.6 cm. and 21.6 cm. Here for the first time we see a gradual increase running through the three groups corresponding to the age differences. Curiously enough, however, the increase in age and increase in chest diameter in the graduate group is not associated with an increase in the size of the heart. In attempting to find some relation, particularly in regard to development, it was found that the total of the two diameters of the chest in centimeters, plus the

TABLE I.—FRESHMEN.

No.	Age.	Height.	Weight.	Lat. D.	A. P. D.	M. L.	M. R.	T.	L.	A.
1.	19	6.	181	31	19.5	9.5	3.5	13	14	5
2.	19	6.1	167	29	19	8	3.5	11.5	13	5
3.	17	5.11 $\frac{1}{4}$	156	28.5	20	9.4	4	13.4	14.5	5.2
4.	19	6.1	156	29.5	20	9.5	4	13.5	16	5
5.	20	6. $\frac{1}{2}$	166	29.5	18.5	9	4.4	13.4	15.3	5.7
6.	19	5.11 $\frac{1}{4}$	162	27.5	17	7.9	4	11.9	13.2	5.5
7.	19	6.2 $\frac{1}{8}$	183	31	20	8.5	4.2	12.7	14	5
8.	18	6.2 $\frac{3}{4}$	183	29	17.5	10.5	3.4	13.9	16.5	5
9.	19	5.10 $\frac{3}{4}$	177	30	21	9.5	4	13.5	16	5
10.	18	5.8 $\frac{1}{4}$	158	28	19	8.5	5	13.5	15	5
11.	19	6. $\frac{1}{2}$	183	28.5	18.5	9	4	13	14.2	5.2
12.	19	6. $\frac{1}{2}$	175	28	22	8	5	13	13.5	5.5
13.	19	6. $\frac{1}{2}$	164	27.5	20	8.8	4.5	13.3	15.5	5
14.	17	5.10 $\frac{1}{2}$	182	30	19.5	9.5	4.7	14.2	15	5.5
15.	19	5.10	186	29.5	19.5	10	2.8	12.8	14	4.5
16.	18	5.11 $\frac{1}{2}$	171 $\frac{1}{2}$	31.5	18.5	8.2	3.7	11.9	13.5	5.2
Average	18.6	5.11.5	170.4	29.25	19.34	8.98	3.98	12.96	14.57	5.14

Lat. D. = Lateral diameter of the chest, line of nipples.

A. P. D. = Antero-posterior diameter of chest, line of nipples.

M. L. = Distance from the median line to left border of heart.

M. R. = Distance from median line to right border of the heart.

T. = Total width of heart.

L. = Length of heart.

A. = Width of the aorta.

TABLE II.—VARSITY CANDIDATES.

No.	Age.	Height.	Weight.	Lat. D.	A. P. D.	M. L.	M. R.	T.	L.	A.
17.	20	6.1 $\frac{1}{2}$	186	30	21	9	5.1	14.1	15.5	5.5
18.	22	6.2 $\frac{1}{2}$	185	31	22	9.9	4	13.9	15.5	5
19.	19	5.11 $\frac{1}{2}$	162	30	18.5	10	4	14	15.2	6
20.	20	6.1	168	28.5	18.5	9.1	4.5	13.6	14.5	5
21.	19	6.3	185	32	22	8.5	6.6	15.1	15	7
22.	18	6.2	187	28.5	21	7.7	6	13.7	17	7
23.	20	6.2	170	30	20	9	4.6	13.6	14	6
24.	20	5.10	170	31	21	8.7	4	12.7	15	5
25.	21	6. $\frac{1}{2}$	176	30	20	10	4	14	15.5	6
26.	20	6.1 $\frac{1}{2}$	186	31	21	8.5	4.9	13.4	14.6	5.8
27.	21	6	170	30.5	20	10.2	4.5	14.7	15.8	5.5
28.	22	5.11	177	29	21	9.1	4.5	13.6	14.8	5.8
29.	21	6. $\frac{3}{4}$	168	29	21	8.6	4.6	13.2	13.5	5.7
30.	21	5.11	152	28.5	18.5	8.5	5	13.5	15.7	6
31.	22	6.2 $\frac{1}{2}$	175	29	18	9.1	4.8	13.9	15	5.2
32.	20	5.11	167	30	19	10.5	4.2	14.7	15.6	6
Average	20.37	6.0.7	174	29.87	20	9.15	4.7	13.85	15.1	5.78

TABLE III.—GRADUATE OARSMEN.

No.	Age.	Height.	Weight.	Lat. D.	A. P. D.	M. L.	M. R.	T.	L.	A.
33.	29	6	156	32	22	9.5	4	13.5	16	6.5
34.	27	5.10	162	31	21	9	4.9	13.9	15	6
35.	25	5.11	175	33	22	9.8	4.4	14.2	15	5.7
36.	30	6	180	30	23	8.4	4.7	13.1	15	6.2
37.	35	5.10 $\frac{1}{2}$	180	33 $\frac{1}{2}$	22 $\frac{1}{2}$	7.5	4	11.5	14	6
38.	25	6. $\frac{3}{4}$	197	32	20	9.7	5	14.7	15	6
39.	28	5.10 $\frac{1}{4}$	176	30	22	10.5	4.8	15.3	16	6
40.	27	6.2	190	32	21	9.8	5.4	15.2	16 $\frac{1}{2}$	6.3
41.	32	6. $\frac{1}{4}$	182	31	20	9.5	6	15.5	16.2	5.7
42.	25	6.2 $\frac{1}{2}$	188	32	23	8.5	5	13.5	14.8	5.5
Average	28.3	5.11.9	178.6	31.6	21.6	9.22	4.81	14.04	15.35	5.79

TABLE IV.

No.	Age.	Height.	Weight.	Lat. D.	A. P. D.	M. L.	M. R.	T.	L.	A.
Groedel's average						8.5	4.7	13.2	14.2	
43.	33	5.10	198			9.5	4.5	14	13.5	5.5
Varsity	20.37	6.0.7	174	29.87	20	9.15	4.7	13.85	15.1	5.78
1918	18.6	5.11	170.4	29.52	19.34	8.98	3.98	12.96	14.57	5.14

average age in years of Groups I and II corresponded almost exactly to the totals of the average width and height of the heart. Further work must be done to establish the consistency of this relation, but the relation in these two groups is of interest.

SUMMARY AND CONCLUSIONS.

Tables are appended which show that there is very little difference in the size of the heart of men who have been rowing for two to four years and men who have been rowing over ten years. The hearts of these two groups are very slightly larger than the hearts of a younger group who have not as yet participated in serious competitive rowing. These differences seem to be explained by the differences in age and development. The only conclusion that can be drawn at this time from this particular study is that prolonged participation in rowing under the system now in vogue at Harvard University and the Union Boat Club of Boston does not materially increase the size of the heart when the heart is sound at the beginning.

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EXPERIMENTAL AND CLINICAL OBSERVATIONS ON THE BLOOD-PRESSURE IN SPINAL ANESTHESIA.*

BY GEORGE G. SMITH, M.D., BOSTON.

THE use of ether in urology has been attended by certain dangers, the chief of which resides in its effect upon the kidneys. It seemed, therefore, when spinal anesthesia was made practicable, that this method for urological cases would prove to be ideal. In many instances, such has been the case. In others, we have been distressed by the severe and alarming fall of blood-pressure which accompanied and was apparently due to this method of anesthesia.

In a number of our spinal anesthesias in which the blood pressure was followed, there was a marked fall, which in some cases amounted to 100 mm. of Hg. In several cases the blood pressure fell even below 45 mm. Hg., which was the lowest level recorded by the clinical apparatus. These extremely low pressures occurred only in a small proportion of spinal anesthesias; in most instances the blood pressure fell to 75 or 80 mm. Hg. Always with the more pronounced drops, and at times with the drops of moderate degree, the patient exhibited the signs of shock—namely, pallor, sweating, nausea, air hunger and a pronounced sense of uneasiness. The pulse al-

ways remained between 60 and 90, and did not increase in rate as the blood-pressure fell. The above mentioned signs appeared in from 10 to 20 minutes after the introduction of the drug, and passed off as the blood-pressure began to rise, which it usually did 10 to 15 minutes later. Several cases which had been through this rapid change of blood pressure had cardiac decompensation within 24 to 48 hours after operation, and although the influence of the operation (usually suprapubic prostatectomy) could not be disregarded, it seemed to us that the spinal anesthesia might well have been an important factor in disturbing a heart which was perhaps not in the best condition to go through such an ordeal. It is fair to say that none of the cases in which a minor operation or cystoscopy alone was done had cardiac decompensation afterwards. It may be that as most of the cases of this class were young men, their cardiovascular systems were better able to stand the fluctuations in blood pressure, whereas the older men, who had prostatectomies, were often in advanced arteriosclerosis.

However that may be, it is a fact that in a considerable percentage of cases the blood-pressure fell to a disturbing degree. Physiologists have found that in animals in which a blood pressure of less than 35 mm. Hg. is induced for more than 15 minutes, a number of nerve cells are actually killed from anemia and the consequent lack of nutrition. It is not unlikely that the very low pressures sometimes seen during spinal anesthesia contribute to post-operative shock through depriving the higher centers of their proper blood supply.

The occurrence of this fall in blood pressure in some cases seemed to us a danger grave enough to contraindicate spinal anesthesia in those very cases in which its use, from other points of view, was most desirable. With a view to finding out the cause of the low pressure, and if possible a means of preventing it, I took the question to Dr. W. T. Porter, and in the laboratory of comparative physiology of the Harvard Medical School we attempted to solve it through experimental methods.

The cat was the animal selected. Fifty were used, and as in many of them more than one experiment was done, we gathered records of 74 different injections.

The cats were lightly anesthetized and then stretched on the cat board. The carotid artery was exposed, connected with a membrane manometer, and a cannula was put in the trachea so that artificial respiration could be established. We found that the changes in blood pressure and the tests of anesthesia were so much influenced by muscular reactions that we could not tell for sure just what was happening, and if the cat became too deeply etherized the reflexes disappeared. Therefore, we abandoned the use of ether throughout the experiments and used curare alone. The animal was turned over on its belly and, as I found that it was impossible to

* Read before the New England branch of the Urological Association. A full report of this work appeared in the *American Journal of Physiology*, July, 1915.

get the needle into the dura with certainty without doing a laminectomy, in every case laminectomy was done. We are well aware that there are certain forces within the spinal sac which keep up the movement of the spinal fluid. It is known, for instance, that respiration tends to cause movements of the spinal fluid; this effect must have been more or less offset by these windows through the spine. Also in considering the effect of gravity, one must allow for the influence of atmospheric pressure when the tube is open at the end. We tried to make allowances for these sources of error, and we feel that the information obtained is substantially accurate. The needle was inserted through the dura and the fluid injected into the cerebro-spinal fluid at the lower lumbar region, where the cord becomes very small. In that region the needle can be inserted perpendicularly into the long axis of the cord. Higher up the needle has to be inserted more or less parallel with the axis of the cord, and the direction of the injection is thereby changed. We have endeavored to consider all these factors in noting the principles underlying the distribution of the drug.

Tropacocaine and novocaine, with and without adrenalin, were the drugs used. Adrenalin alone injected into the spinal canal was found to have no effect upon the blood-pressure.

The literature from 1900 to March, 1915, contained no conclusive work on the blood-pressure during spinal anesthesia. A number of writers mentioned the fall in blood-pressure, but attributed it to the effect of the drug upon the bulbar centers. In our experience with cats under ether alone, if the injection was made into the spinal sac below the phrenic nerves (5th cervical) and ascended to the medullary centers, respiration was always paralyzed. In the 125 cases in which spinal anesthesia was used on the genitourinary service at the Massachusetts General Hospital, no case showed respiratory paralysis. The fall of blood pressure, therefore, cannot be attributed to the influence of the drug upon the bulbar centers.

It has been shown that the blood-pressure is dependent largely upon the condition of the blood vessels of the splanchnic area. The mechanism by which the pressure in this area is regulated consists upon its efferent side of three links: (1) the bulbar centers, (2) the efferent vasomotor tracts which run in the antero-lateral columns of the cord, (3) the vasomotor fibres which pass out with the anterior roots of the cord from the 5th dorsal to the 3d lumbar segments. (Howell: American Text-book of Physiology, vol. i, p. 206.)

In our experiments it appeared that all of these links of the vasomotor mechanism were susceptible to paralysis by novocaine. When, however, the drug is injected in the lumbar region, as in spinal anesthesia, its effect as it diffuses throughout the spinal fluid is felt first and chiefly by the vasomotor fibres of the anterior roots.

Several typical experiments are illustrated by the accompanying figures, the legends of which contain the essential facts. (Figs. 1, 2, 3, 4.)

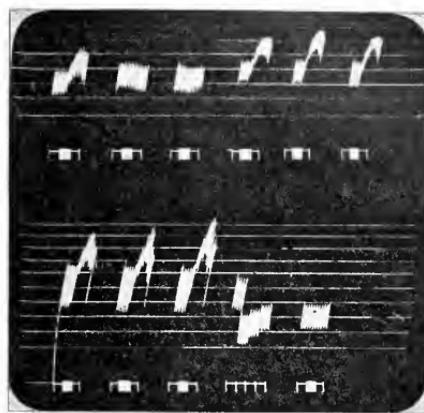


FIG. 1.

Experiment 45, Feb. 26, 1915. Cord exposed at L. VII and D. XI. Curarized cat. Scale 50, 70, etc.

1 c.c. of 1% Novocaine and Ad. "C" at L. VII at 12.22 P.M. causes fall of blood-pressure from 100 mm. to 55 mm. in three minutes. Diminution of brachial reflex and paralysis of dorsal columns at D. XI.

	LOWER CURVE—LEFT TO RIGHT.	UPPER CURVE—LEFT TO RIGHT.	
1. Sciatic	12.10 P.M.	1. Brachial	12.34 P.M.
2. Brachial	12.14	2. Lumbar VIII ..	12.37
3. Lumbar	12.15	3. Dorsal XI	12.39
	12.17	4. Sciatic	12.25
	12.22 Injection	5. Lumbar VII ..	12.27
4. Blood-pressure at	12.25	6. Dorsal XI	12.29
	12.28		
	12.31		
5. Sciatic	12.32		

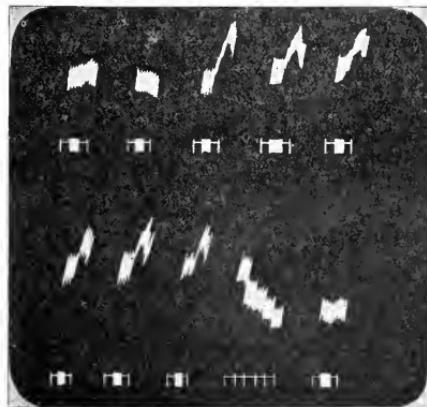


FIG. 2.

Experiment 46, March 4, 1915. Cord exposed at C. II and D. II. Curarized cat.

0.2 c.c. of 5% Novocaine and Adrenalin "C" at C. II towards the head at 9.49 P.M. causes gradual fall from 110 mm. to 60 mm. in 12 minutes with paralysis of sciatic, brachial, and cervical II. Lateral surface D. II gives response. This experiment proves that the dorsal column in the cervical region are paralyzed, but that the vasomotor mechanism below the paralyzed segment is not affected.

LOWER CURVE—LEFT TO RIGHT.

1. Sciatic	9.40 P.M.
2. Brachial	9.43
3. Cervical II.....	9.46
4. Blood-pressure at	{ 9.48 9.52 9.55 9.58 10.01
5. Sciatic	10.03

UPPER CURVE—LEFT TO RIGHT.

1. Brachial	10.05 P.M.
2. Cervical II.....	10.07
3. Lat. Sur. D. II.....	10.12
4. Sciatic	11.40
5. Brachial	11.43

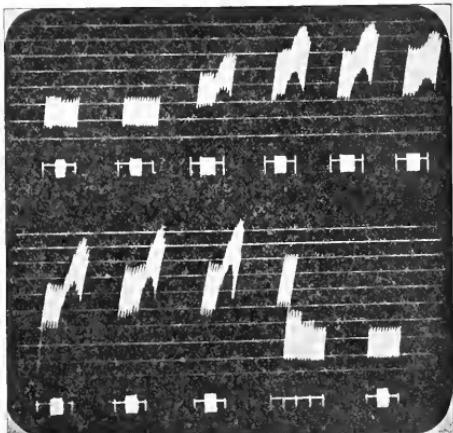


FIG. 3.

Experiment 43, Feb. 19, 1915. Cord exposed at D. VI.
Curarized cat.

0.2 c.c. of 5% Novocaine and Adrenalin "C" at Dorsal VI at 9.03 P.M. causes a fall in blood-pressure from 110 mm. to 45 mm. in three minutes. Paralysis of Brachial and Dorsal VI. Scale 30, 50, 70, etc.

LOWER CURVE—LEFT TO RIGHT.

1. Sciatic	8.55 P.M.
2. Brachial	8.58
3. Dorsal VI.....	8.61
4. Blood-pressure at	{ 9.02 9.03 Injection 9.06 9.09 9.12
5. Sciatic	9.13

UPPER CURVE—LEFT TO RIGHT.

1. Brachial	9.15 P.M.
2. Dorsal VI	9.17
3. Brachial	9.42
4. Brachial	10.12
5. Sciatic	10.14
6. Dorsal VI.....	10.15

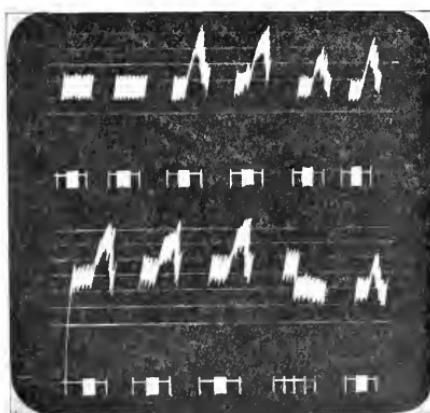


FIG. 4.

Experiment 42, Feb. 16, 1915. Lumbar VII and Lumbar I exposed.
Curarized cat. Scale 70, 90, 110, etc.

0.2 c.c. of 5% Novocaine and Adrenalin "C" at L. VII at 9.22 P.M., causes fall from 120 mm. to 95 mm. and incomplete paralysis of sciatic nerve; 18 minutes after injection the board is tilted and complete paralysis of sciatic follows. L. I not paralyzed.

LOWER CURVE—LEFT TO RIGHT.

1. Sciatic	9.11 P.M.
2. Brachial	9.13
3. Lumbar VII.....	9.15
4. Brachial	9.17
5. Brachial	9.22 Injection
6. Sciatic	9.25
7. Sciatic	9.28
8. Sciatic	9.31
9. Sciatic	9.33

UPPER CURVE—LEFT TO RIGHT.

1. Sciatic	9.48 P.M.
2. Lumbar VII.....	9.49
3. Lumbar I.....	9.51
4. Brachial	9.54
5. Sciatic	10.22
6. Lumbar VII..	10.25

As a result of our work, the following conclusions may be drawn:—

1. The blood-pressure can be lowered as much by spinal anesthesia as by section of the cord in the cervical region.

2. The greatest fall was caused by injection of the drug in the thoracic region, where the vasoconstrictor fibres which supply the splanchnic area leave the cord.

3. This part of the vasoconstrictor mechanism is the first affected by the drug when the injection is made in the lumbar region.

4. The extent of diffusion of the drug within the dural sac appears to be influenced more by the bulk of the solution injected than by any other one factor.

5. A given amount of drug in a concentrated solution diffuses less and consequently lowers blood pressure less than does the same amount of drug in a more dilute solution.

6. The greatest effects upon blood pressure were noted when adrenalin was combined with novocaine.

7. Entire fixation of the drug does not take place within 20 minutes after the time of injection.

8. When a solution of greater specific gravity than spinal fluid is used, the extent of diffusion may be increased by gravity.

9. Attempts to raise the blood pressure by the intravenous injection of pituitrin or adrenalin gave only a very transient rise.

Clinical Department.

PITUITARY EXTRACT AS HEMOSTATIC IN HEMORRHAGES OF THE LUNGS.

BY M. J. KONIKOW, M.D., BOSTON.

In the ever-increasing literature on the pituitary extract and its action, we have not come across a single case where this extract has been used as a hemostatic in severe hemorrhages of the lungs. True, Bab¹ reports its action as gynecological stypticum, while Étienne,² Hamburger,³ Lewis,⁴ Klotz⁵ and many others dwell upon its action on the blood pressure. The latter recommends it especially in uterine hemor-

rhages due to postpartum atony of the uterus. He also thinks it may be of value in other hemorrhages dependent upon a low vasomotor tone, although he has no personal experience with its use in such conditions. Wiggers⁶ and Pal⁷ observe its constrictive action on peripheral blood vessels, thus producing a marked rise of arterial blood pressure. But a definite mention, to our knowledge, of the use of this extract in hemorrhage of the lungs is lacking. This in our opinion should serve as a sufficient justification in reporting the following case:

S. F., druggist, 32, married, two children.

Family History. Negative.

Previous History. When a child of six, had a long-standing cold abscess on the left side of the chest, which eventually emptied itself in two places, and left two considerable scars with some retraction of the left chest wall. Had his first hemorrhage from the lungs 13 years ago, from which he recovered in a few weeks. Three years ago had another hemorrhage with same good results. During these three years patient was working hard, stayed late hours in his store, had little sleep and irregular meals, with very few chances for outdoor exercises.

On June 2, 1915, he was overtaken with a severe hemorrhage and had to be carried home in a taxicab.

Examination. On my arrival I found him in bed, still coughing up and spitting considerable blood. Pulse was rapid, easily compressible, 104 per minute. Any further examination, in view of the conditions, was postponed for a future time. Ice was ordered internally and externally. In the absence of morphium, it occurred to me that pituitary extract might be a good substitute. One c.c. of "pituitary liquid" (prepared in one c.c. ampoules, each supposed to contain 0.2 grams of the fresh posterior lobe of the pituitary body of the ox) was injected hypodermically.

The result was magical. Within ten minutes the pulse dropped down to 76, it became less compressible, the heart slowed down in its action, the patient was coughing up less and less blood, and at the end of 30 minutes he was expectorating only slightly colored sputum.

Consequent History. For four days patient was spitting blood only in the mornings, in very slight quantities, about the size of a pea each time. In about ten days patient felt so good, that he ventured to go down and up two flights.

Another hemorrhage occurred. Similar condition of the pulse and heart found. Again "pituitary liquid" was used with the same excellent results. A week after a third hemorrhage occurred. In my absence another physician was called in. Codeine in 1/6 of a grain doses was given per mouth. I saw the patient sixteen hours after this attack. He had the worst attack he ever had, and the hemorrhage at the time of my examination was still continuing. Every cough would produce a mouthful of blood. His pulse was very weak and rapid, heart beats accelerated, at times irregular. A hypodermic injection of the same "pituitary liquid" was administered, and, in view of a threatened collapse, followed by 1/30 of a grain of strychnin. Patient responded quickly in the same manner. He made a steady recovery and is at the time of this writing enjoying a country vacation.

SUMMARY.

This case suggests that in pituitary extract we have a powerful hemostatic in pulmonary hemorrhages. The *modus operandi* here is probably based upon the same principle as its action on the uterus as an oxytocic. In both cases the results are due to the constrictive action on the peripheral blood vessels, in the first instance checking by it the hemorrhage, in the second instance producing by it a temporary anaemia of the uterine muscles, which in its turn causes their contractions.

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Reports of Societies

NEW ENGLAND BRANCH OF THE AMERICAN UROLOGICAL ASSOCIATION.

WINTER MEETING HELD MARCH 30, 1915, AT THE HARVARD CLUB, BOSTON, MASS.

President, DR. A. L. CHUTE, Boston.
Secretary, DR. R. F. O'NEIL, Boston.

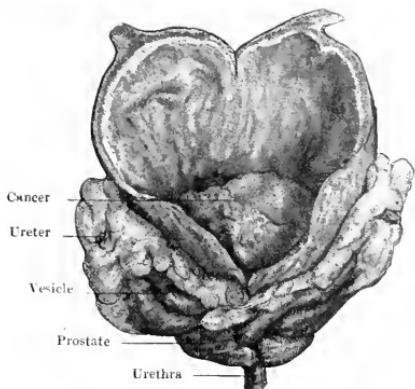
PRESENTATION OF SPECIMENS, INSTRUMENTS, AND REPORTS OF CASES.

A CASE OF TOTAL CYSTECTOMY FOR MALIGNANT DISEASE OF THE BLADDER.

DR. A. H. CROSBIE, Boston: I have here a specimen of a bladder that I believe will be of interest to you. It is from a man fifty-seven years of age, whose symptoms began four months before he presented himself, and upon whom I did a total cystectomy because of a malignant growth involving the region of the right ureter. This man showed nothing characteristic in the way of symptoms, just a turbid urine with frequent and painful urination.

Cystoscopic examination showed that his symptoms were due to a tumor about the size of a small hen's egg, involving the right ureteral region and orifice. Not only did this mass which had the appearance of a malignant mass, involve the region of the right ureter, but it extended so near to the bladder outlet as to make any partial cystectomy, even with transplantation of the ureter, seem out of the question. Therefore, total cystectomy was decided upon.

At the first operation, which was done three weeks before the cystectomy, I did a double lumbar ureterostomy, allowing three quarters of an inch of



the ureter to project beyond the surface of the loin. The right ureter was found very considerably dilated at this time, and the urine slightly turbid. The patient suffered from two attacks of pyelonephritis of moderate severity during the interval of three weeks between the ureterostomy and the cystectomy. This interval between the operations was determined upon, because in another case of double ureterostomy on the urinary service at St. Elizabeth's Hospital it was found that the patient suffered from repeated attacks of acute pyelonephritis following operation, in fact, died of this cause. I therefore wished to wait until this patient developed a certain immunity in this regard. The ureters during this time swelled up very considerably and a considerable part of one of them sloughed away, due, I believe, to cutting off the blood supply with the stitch with which I anchored this ureter to the skin of the loin.

On March ninth the urethra was exposed through a transverse perineal incision, cut across and freed up to the general region of the prostate. The incision was packed lightly, the patient put in the dorsal position with his pelvis slightly raised and a median abdominal incision made. The perivesical space was opened without opening the peritoneum and then the peritoneum was gradually pushed back until I was able to expose the back of the bladder to the point where the ureters entered it. They were tied and cut on both sides. The pubo-uretic ligaments were then cut and some bleeding points tied. After the seminal vesicles and prostate were dissected free from the rectum, I found I had reached the point to which I had worked up through my perineal incision. The bladder was then wholly separated from its attachments. A large tube was carried out through the perineal wound to drain the pelvis. Other tubes were introduced from above and the wound closed.

The patient has made a very good convalescence and is now practically ready to go home. There have been one or two attacks of pain low down in his left side, accompanied with temperature, that I think may be due to a little section of ureter that was allowed to remain on that side.

As I see them, the important points of this operation, which is as yet uncommon, are these:

One should allow the end of the ureter to project beyond the skin of the loin some little distance. This certainly helps in fitting a collecting apparatus.

It may be an element in lessening the stenosis of the new ureteral outlet.

A considerable interval, we believe, three weeks or more, should elapse between the ureterostomy and the cystectomy. This is because pyelonephritis is almost sure to occur following ureterostomy, and this added to as serious an operation as cystectomy will prove fatal to a considerable number of these patients. The patients develop a certain immunity after the first severe attacks.

The operation, to my mind, should be done by the combined perineal and abdominal routes. In this, one begins below and dissects the urethra free as high as the prostate; one then begins above and carries the dissection down all about the bladder until he meets his first incision. If this dissection can be carried out without opening the peritoneum, it lessens the danger.

I believe that I left a small section of ureter on this patient's left side. It would be interesting to know whether the attacks of pain with temperature and local tenderness referred to this region were due to this little piece of ureter. If so, it would indicate the importance of removing it all at the time of operation.

DISCUSSION.

DR. J. B. BLAKE, Boston: Did you have any difficulty with the openings of the ureters,—was there any tendency toward stricture?

DR. CROSBIE: Not a bit. The right ureter I made out at the time of the operation was very much dilated, about the size of the thumb, and probably practically no urine was getting through from the right kidney into the bladder. Since the operation it runs freely on the right side.

The urine was of low specific gravity and has contained pus all the time. It had first a specific gravity of 1001 and it now is 1005. Apparently the right kidney is getting back some of its function.

DR. F. S. WATSON, Boston: I am afraid I have spoken already far too often upon one of my favorite projects, which is again suggested by the case just reported by Dr. Crosbie, but if you will forgive me, I will say just a word with regard to it once more.

Dr. Crosbie has followed the example of all but one or two of those who have adopted the plan of doing total cystectomy, which I proposed in 1905 for the first time. That is to say, he has adopted the most important part of my plan, which is that of dividing the operation of total cystectomy into two stages, but has substituted ureterostomy in the place of bilateral nephrostomy which I originally counselled as being preferable to it.

I received a letter from a gentleman in Philadelphia not long since, who tells me that he has followed my plan as it was proposed and that he has had a very successful result with it. His patient was operated on one year ago and is in good condition up to this time. This is almost the only case in which the bilateral nephrostomy, which I urged to be done as the preliminary operation in order to divert the urinary secretion before attacking the operation of total cystectomy, has been done, so far as I can learn.

My preference for the nephrostomy preliminary operation was based upon the knowledge that we had at that time, and have still today, that the kid-

ney is less liable to become infected with the broad, direct, free drainage that it offers, than it is in connection with the operation of ureterostomy, and, moreover, if infection does occur in the presence of well arranged and sufficiently free nephrostomy operations, it does not result harmfully to the patient, or in any case it is far less likely so to result than is the operation of ureterostomy, the drainage channel supplied by which is liable to become narrowed or occluded by adhesions, by bends in its course, and is in any case less free than is that of the nephrostomy drainage.

Both of the operations are easy of performance in the great majority of cases. I have always fancied that the preference for the ureterostomy was owing to its being the more readily performed of the two, which it is in my experience.

I am gratified however, to know as experience accumulates in the performance of total cystectomy in two stages as I advised and in the abandonment of the rectal implantation of the ureters in connection with it, which was the usual method employed formerly, that my prediction, that the mortality of total cystectomy would be greatly lessened if my plan were adopted, has proved true. In so far as the operative mortality is concerned, I have not seen reported as yet an operative death since the two-stage method has been put in operation. I still cling fondly to my preference for nephrostomy instead of any form of ureterostomy, but so far as this feature of my plan is concerned, I am open to conviction, and will gladly yield this point of the plan if I shall be proved to have been mistaken in the view I took of it.

I have shown the patient to this association on one occasion who has been wearing the apparatus which I devised for receiving the urine flowing from bilateral permanent renal fistulae. I will merely add now that he is still in excellent health in the eighteenth year following the first operation which was done.

DR. H. CABOT, Boston: We have had a little experience with the question raised by Dr. Watson as to the preference being given to nephrostomy over ureterostomy. I did three cases of nephrostomy and then I abandoned it, I will frankly say because mine were not successful. The results to the kidney were so certain and so absolutely damaging that I had to abandon it. My difficulty was this—the kidney under reasonably normal conditions is a very movable organ. The tube placed in the kidney is very apt to become fixed. As a result it becomes withdrawn from the renal pelvis and extensive, damaging and general infection of the kidney will occur. That has been the difficulty which I have been unable to overcome, the accurate fixing of the tube in a normal renal pelvis. There is no difficulty in a dilated renal pelvis. Therefore, the mere management of a nephrostomy with a normal kidney has seemed to me highly difficult on its technical side. If you do get efficient drainage of the renal pelvis through the kidney substance, the future integrity of the kidney is better secured than by ureterostomy, but I have been unable to carry it out technically.

Ureterostomy is open to the objection that it opens the lymphoid channels to the kidneys by the ureter. It is demonstrated experimentally and clinically with us with considerable regularity. Our prettiest case was a man in whom ureterostomy was done for cancer. After ten days a little redness of

the skin about one ureter was observed. From that a colon bacillus was obtained. Two days later he had fever and colon bacilli were obtained from the corresponding kidney, demonstrating the ascension of the process in the wall of the ureter. This has been demonstrated also with the coccus, though I think the bacillus follows the lymphatics more readily than does the coccus.

If a technique can be worked out that will satisfactorily drain the renal pelvis through the kidney, I believe that Dr. Watson's position will be entirely secure.

DR. R. F. O'NEIL, Boston: In line with Dr. Crozier's case I should like to mention again the case I reported at the last meeting. A case of malignant disease of the bladder in which double ureterostomy was done as a palliative measure for the relief of urinary symptoms. The second operation of removal of the bladder could not be done, as I was able to demonstrate at the first operation that the disease had gone beyond the bladder and the glands along the spine were involved.

There was no difficulty whatever about the ureterostomy. The ureters were exposed at the pelvic brim, freed towards the bladder and up to the kidney. They were divided low down. The lower end ligated and the upper brought out through a stab-wound in the back at a point previously marked. These were left protruding about one and one-half inches beyond the skin. They did not slough, and five weeks later were trimmed off close to the skin. Immediately following this a colon bacillus infection of the right kidney occurred. This ureter was dilated as a result of the pressure of the growth and was, I think, cut off a little too short. The infection subsided but never disappeared. The ureterostomy worked well up to the patient's death from his disease, a few months after the operation.

DR. A. L. CHUTE, Boston: In regard to these two operations, nephrostomy and ureterostomy, I recently have had a case of each. The first was a woman of thirty with an absolutely destroyed, tuberculous kidney on her right. On her left she began some weeks before to have attacks of colic with vomiting and later, signs of uræmia. A thickened ureter could be felt below, on her left. The urine was very pale, but that taken from the left pelvis showed little change. It was my opinion that I had to do with an ascending, urinary tuberculosis on the left side; that this process was beginning below with a thickening of the ureter which was so increased at times as utterly to shut off her urine, causing an obstructive anuria. During these attacks she had first colicky pain and temperature due to the obstruction, and later, vomiting, headache, etc., due to the toxæmia. I could see nothing to do to relieve her but to do a nephrostomy, which I did, in May or June of last year. She came into the hospital within a week rather used up following an influenza. She has improved in color, in appetite and in weight. She has had no further attacks of colic or vomiting. Her loin sinus is of little trouble during the day, but at night we have as yet devised no satisfactory means of keeping her dry. As yet there is no sign of any decrease in size or increase in the lumen of the diseased ureter. I had hoped that the complete rest given the ureter, so far as function is concerned, would lead to improvement so far as the tuberculosis was concerned; but there is no evidence of this as yet.

The double ureterostomy was done about two

months ago on a woman in her fifties. This was intended as preliminary to a total cystectomy for cancer of the bladder. The patient had considerably dilated ureter on one side. She had a sharp pyelonephritis following operation and then faded away, dying about two weeks after the operation.

DR. G. G. SMITH, Boston: I might say just a word about the nephrostomy to which Dr. Cabot referred.

The difficulty there was, that I did not get the tube clear into the pelvis of the kidney. On one side it was all right, but on the second side I was in too much of a hurry. I think I stripped the mucous membrane lining the pelvis so that my finger seemed to be in a free cavity, whereas, it really was not.

Autopsy showed that the tube on that side went through the cortex and then lay occluded by mucous membrane so that it did not drain the pelvis at all. There were focal abscesses in the kidney. I think that is probably the reason the man died.

A CASE OF DIVERTICULUM OF THE BLADDER.

DR. J. D. BARNEY, Boston: The specimen I wish to show you is that of a diverticulum of the bladder, interesting because of its unusually large size. It was from a colored man of 56 years old. He was referred to me early last February, with the story that up to last January he had had no urinary difficulties of any sort. He had a long venereal history. In January he had sudden acute retention, and from that time until I saw him he had had to be catheterized frequently. His bladder was distended up to the umbilicus. With a soft rubber catheter I drew off about three pints of urine like pea-soup, loaded with pus and blood. I tried to cystoscope him, but had much difficulty getting the instrument into his bladder. There was some bleeding, and I could put fluid in but could not get it out. This made me suspicious that I might have gone through his bladder into the peritoneal cavity. Such was not the case, for, after removing the cystoscope, I was able to empty the bladder fairly well by a silver catheter.

I sent him to the hospital and made two or three more attempts with the cystoscope, but with little success; all I could see was a red blur, and the passage of the instrument as well as the removal of fluid from the bladder was very difficult. Finally, I introduced a silver catheter and found that it went readily into a large cavity in the median line which I could empty and wash out easily. In the meantime, we had noticed a smooth, round, firm mass the size of a grape fruit, low down on the right side of the pelvis. By withdrawing the catheter I was able, after a little manipulation, to pass it into this second cavity from which I was able to draw off about fourteen ounces of thick, dirty urine. After emptying this sac, I could feel a distinct grating of calculi. I made a diagnosis of diverticulum, with calculi, but could not gather any more information from an x-ray.

Operation was performed with gas-oxygen anesthesia. I opened the bladder suprapublically and found an opening on the right side, rather high up, which admitted my forefinger. This cavity had apparently not been drained, in spite of the fact that we had tried almost for a week with various kinds of constant drainage apparatus. I packed the cavity tightly with gauze, pushed back the periton-

eum and dissected it out entirely extra-peritoneally. This was not difficult, except in spots where there were firm adhesions, especially low down against the pelvic wall. Previous to this I tried to find the ureteric orifice on that side but could not. During the dissection the ureter showed up, lying between the diverticulum and the bladder, and I had no trouble with it. It emptied normally into the bladder. Having dissected the diverticulum down to a small neck connecting it with the bladder, I cut this off and closed the opening with a double row of sutures.

Convalescence was uneventful, and the suprapubic wound was closed. The urine was quite clear, but unfortunately the patient can urinate only an ounce or two, after which twenty or thirty ounces can be withdrawn. This retention seems to be a not unusual occurrence as a result of a diverticulum; probably owing to a lack of tonicity.

It may be that the retention is due to an enlarged prostate. I noted at the operation that his prostate was slightly enlarged, but as he was having all that was good for him, I decided not to take it out. Whether the removal of his prostate will relieve his difficulty remains to be seen. We are inclined to let him go home to see how things will work, instructing him to catheterize himself when necessary.

The specimen which I will show you was stuffed with cotton and then hardened in formalin. A small piece was taken out for examination. We have no detailed report as yet, but there appear to be two or three muscle layers which would indicate the congenital origin of this diverticulum.

DISCUSSION.

DR. F. S. WATSON, Boston: I feel inclined to congratulate Dr. Barney because of his having refrained from disturbing the prostate when he removed the diverticulum of the bladder which he has shown us. I say this because of a singular and so far as I can learn unique experience of mine in which the prostate and a diverticulum played the principal parts. The truth of the statements I shall make about it will be vouchsafed by Dr. Blake who was with me when I did the operation.

The incident was as follows: I was doing a perineal prostatectomy one day, and had reached the point of the operation when the prostate, which I should have said was not a very large one, was enucleated and lying free within its sheath. I was about to draw it toward the outer wound with my finger tip when it slipped from under it and fell into the bladder. This did not disturb me, because I knew that I could readily seize and withdraw it with a pair of forceps. I put the blades of the forceps into the bladder and began my search for the gland. I continued it for five full minutes without finding the runaway anywhere within the bladder. I put my finger into the bladder and four minutes' unavailing search was added to that which had preceded. I diligently, but with lowered spirit, then examined the rectum. I became convinced that I was the victim of witchcraft. However, I once more made a digital exploration of the bladder and as I was again about to retire from it profoundly discouraged, the tip of the finger slipped into the mouth of a diverticulum. Within it, snugly ensconced lay the wandering prostate. After some trouble I succeeded in seizing it and extracting it from its lair. The episode was closed.

DR. R. F. O'NEIL, Boston: Was the Wassermann reaction done?

DR. BARNEY: We went all over the venereal history, and it was negative.

A VESICAL CALCULUS FORMED ABOUT A LIGATURE FOLLOWING AN OPERATION FOR HERNIA.

DR. A. L. CHUTE, Boston: I have here a bladder stone which I removed yesterday. It has a piece of ligature attached. It was found, not at the base of the bladder, where one ordinarily sees stones, but well up on the lateral wall. The patient, a man of thirty-five, had a hernia operation two years ago and following this he had urinary symptoms, pain, frequency of urination, and at times a slightly bloody urine. He was seen by one or two men who felt sure his symptoms were due to prostatic trouble. They made cystoscopic examinations but evidently examined only the trigone, which in this case was not the most important part, for I found this stone clinging well up on the right lateral wall. Its position at once stamped it as either a stone formed on a ligature, or one held in a diverticulum. The history of an operation made the former the more probable. When I opened his bladder yesterday, the stone was held definitely in place. Finally I hooked into the little loop of thread and broke it so that I could pull the rest of the loop out, and removed the stone which, you will see, is formed about a bit of linen thread.

It is the second stone of this sort that I have seen. They bring up an interesting question as to whether these ligatures on which they form penetrate the bladder wall at the time of operation, or whether they migrate into the bladder later, as foreign bodies occasionally do. My feeling has been that these ligatures probably migrate into the bladder. Most men, I think, do not agree with me, but feel that the suture penetrates the bladder at the time of operation. Which is right I do not know.

DR. G. G. SMITH read a paper entitled "Experimental and Clinical Observations on the Blood Pressure in Spinal Anesthesia."*

DISCUSSION.

DR. C. O. COOKE, Providence: I should like to report a case of spinal anesthesia in which there was a fall in blood pressure of 155 m.m. The patient, a man of 65 years of age was operated on for stones in the bladder. The blood pressure before administration was 225 m.m. He was given 6/100 gram stovain and 6/100 gram glucose. Three minutes afterward, the man became unconscious and began to snore as if under general anesthesia. The blood pressure was 70 m.m., a fall of 155 m.m. in three minutes. It remained around 70 to 90 for 50 minutes, then gradually began to rise. In one hour and 15 minutes it had reached 140. The patient after that had no untoward symptoms. He was given 1.2 c.c. of this solution, which would be 6/100 gr. of stovain and 6/100 grains of glucose.

DR. H. CABOT, Boston: In regard to clinical knowledge, there are certain facts which seem to me clear, but on which I think we want further data. It has been striking in my personal experience that the comparatively young individuals to whom spinal anesthesia has been given for operations on the extremities or on the perineum including cystoscopy,

have all done extremely well. The blood pressures which have been done in a number of these cases have not shown very great drops. The older individuals, particularly those upon whom operations have been done above the symphysis, have shown the great drops in blood pressure and have given the outward and visible evidence of shock. I have been unable in my own mind to avoid the conclusion that these great drops bear a direct relation to the condition of the arteries, being related either to arteriosclerosis or to a weak heart, or both. The explanation of that I am not prepared to give, unless it be that the compensating mechanism which avoids the over distention from paralysis from the splanchnic vessels is better managed by those with limber vessels than those with stiff vessels. That explains why a large group of cases, chiefly gynecological, have uniformly done well, and why a group of our cases, for instance, of prostatectomy on people of advanced life, have done badly.

DR. SMITH has carried this work a little farther than I have seen it carried before, and it seems to me an extremely valuable piece of work in a field where we have been groping in the dark, where there has been tendency to publish good results and withhold bad ones. I do not think spinal anesthesia is either highly desirable or highly undesirable, but I think we shall come to rely on it as a safe anesthesia in certain cases.

DR. E. L. YOUNG, JR., read a paper entitled, "A New Preparation for Pyelography Illustrated."†

DISCUSSION.

DR. H. BINNEY, Boston: After having read last year about the use of silver iodide, I did some experiments of injecting the kidney pelvis in rabbits, using a 5% suspension of silver iodide in albolene. Examination post mortem showed at varying numbers of days after injecting no evidence of irritation and the material passed out of the pelvis pretty rapidly. I later tried a suspension in an emulsion of quince seed suggested by the originator, and found, as Dr. Young says, that it becomes contaminated by fungus growth, and oxidized. I did not try it on a human subject as it seemed unwise with such a thick preparation.

I congratulate Dr. Young for having worked out such a satisfactory preparation.

DR. CHUTE: I have the pleasure of introducing to you Dr. Paul W. Pilcher of Brooklyn, N. Y., who will read a paper entitled, "Transvesical Prostatectomy. A Discussion of Some Unsettled Points in the Preparation for and the Technic of the Operation."‡

DISCUSSION.

DR. W. W. TOWNSEND, Rutland, Vt.: I would like to ask Dr. Pilcher if he would go a little into detail with regard to the estimation of the leakage through the drainage tube.

DR. PILCHER: In suturing the Pezzer catheter into the suprapubic wound, it is found that there is no leakage around it and that all the urine is passed through the Pezzer catheter; therefore, any test of renal function may be made and the entire amount of urine passed in a given time collected and an accurate test made.

DR. G. G. SMITH, Boston: What anesthesia do you use?

* See JOURNAL, Vol. clxxii, p. 539.

† See JOURNAL, page 494.

DR. PILCHER: The preliminary operation is done under novocain anesthesia. The second operation is done under ether anesthesia given by the drop method with infiltration of the prostate and urethra with the novocain solution.

DR. H. CABOT, Boston: I do not want to let this occasion pass without making some comments. Dr. Pilcher seems to me to have carried farther than anybody else that I know, certain steps of this two-stage operation. The two-stage operation (I don't know where it originated), as it was commonly done by a good many men consisted of opening the bladder and leaving the patient soaking wet for two or three weeks. Now this operation of Dr. Pilcher's is on an entirely different basis and interested me because I think it should be compared with the cases which we drained above the bone by puncture, which was described with illustrations by Dr. Wishard in 1888, and has been used by him ever since.

This, it seems to me, has some of the advantages of Dr. Pilcher's procedure. It enables you to get suprapubic drainage through a good size catheter. It does not give the walling off of the tissues so that secondary infection will not take place. We have used that procedure in a small number of cases, almost entirely those which have over-distended bladder, in which the urine is uninjected, and in which we dislike the certain infection following urethral drainage. These we have punctured and put in a catheter, and later, at the time selected very much as he does, have operated by an ordinary suprapubic operation. The only flaw in these cases is that they heal slowly. I confess that with some of the patients that we see, I fear that my abbreviated fingers would be unable to reach the prostate. Some of them have an abdominal wall about four inches thick. Perhaps I could borrow an extension from Dr. Pilcher. This preliminary walling off of the tissues introduces an element which I have never before seen mentioned, and it seems to me interesting.

Again, Dr. Pilcher's paper brings out that bad time, about four or five or six days after beginning drainage, with everything going down. I have come to believe that that represents acute pyelonephritis generally with the colon bacillus, a phase through which most of these patients have to go, and it seems the thing which we achieve by our drainage. This sounds ridiculous but it is true, and it produces an immunity which protects him. This immunity is probably short-lived. It has been our experience that we could demonstrate the onset of this infection in the urine, and the slow at first, then rapid, decline of the kidney function as the infection in the kidney takes hold and develops. Whether or not there is any avoiding that process of voluntarily infecting the kidneys and letting them secure their own balance is an interesting point to be developed in the future. If there is any way by which we can protect these patients against infection, it seems to me it would be interesting. I shall be tempted to try this two-stage method of Dr. Pilcher's.

DR. J. W. KEEFE, Providence, R. I.: I have had some experience with this two-stage method advocated by Dr. Pilcher, and I can say that I have been very much pleased with the progress of most of the cases. I have used the local anaesthesia during the primary operation, novocaine about 1/400 and adrenalin. I have felt that the combination was a little bit better than the novocaine alone.

It is just as Dr. Pilcher has said,—when you use a Pezzer catheter you can have all the urine passed into a bottle either attached to the dressing or placed at the side of the bed. In a few cases I use the ordinary drainage tube, but I do think the Pezzer catheter is more desirable.

It is important not to introduce your tube very far into the bladder. If it goes but a short distance into the bladder there is much less irritation.

I was quite surprised to find how readily one could, after the wound was partially healed, pass a finger through, where the drainage tube was, and enucleate the prostate, and then with a small stone forceps grasp the prostate and remove it.

My experience in prostatic work has given me an opportunity to try several different methods. First, from doing most of our work through the perineum and doing median perineal operations we remove the prostate by that route. Then I saw Dr. Young do some of his work, and I concluded that that was a very good way. In some cases it worked beautifully. Then I saw Dr. Mayo do some of his perineal prostatectomies, using his knife to make an incision through the mucous membrane. There are types of cases where that works very well, and it was surprising to see him, after doing a hard day's work, at the close of the day do a couple of prostatectomies in a very short time. In former times when we had those large wounds following suprapubic operations, and we found the wound sloughing and encrusted with phosphatic material, I had the impression that the suprapubic operation was a pretty serious matter, but as the suprapubic operation is done today according to this method of Dr. Pilcher, where you open your bladder and put your catheter in and close it properly, you have a different problem.

Dr. Cabot is just right about what he said with reference to the patient becoming immune. I think when we make this incision in our suprapubic primary operation, the patient does get a certain reaction from that, and I think we really do immunize the patient. So when we go in the second time to enucleate our prostate I think the patient is in a better condition to withstand the trauma. It seems at times one could enucleate the prostate at the first operation so easily that there is a temptation to do it. In one case I think of, which should have been a two-stage operation, we concluded we would take it out in the first stage, and got away with it.

Some years ago I opened the bladder by mistake in doing an abdominal operation, and the other day I opened the peritoneum in doing this first stage operation and it seemed to me that it was not possible to do it. So I was glad to see that Dr. Pilcher had clearly drawn out the fact that the peritoneum can be very near the pubic bone. In this particular case, the peritoneum bulged up so that it was very prominent.

We must bear in mind that we must not criticize the other fellow too much, but I have been impressed with the fact that Dr. Pilcher is on the right track.

DR. J. H. CUNNINGHAM, JR., Boston: I do not remember having heard a paper on the subject of prostatectomy that has held my interest more than the one Dr. Pilcher has given tonight. The various features that he has spoken of are all practical steps, and the reasons for their employment seem to me sound in every particular. The method of suprapubic drainage with the Pezzer catheter is one that I have employed for several years and to my mind

is the ideal method. The preoperative charts are most interesting and instructive. I think we have all observed the clinical features which they graphically portray, and I believe such charts are of much value. The Hagner bag with a catheter passing through it appeals to me strongly, for being one who still does the perineal operation, I have been working on this same idea to control haemorrhage and still have perineal drainage. This modification solves my problem.

DR. G. A. MATTESON, Providence, R. I.: I wish to simply mention a means of extemporizing a Hagner bag by taking a glove finger and attaching it to a rubber catheter by means of an elastic band. This seems very thin, and insecure on account of its thinness, but I have found by testing that it stands all the pressure that is necessary, and serves the purpose very satisfactorily. I have used it in several instances with entire success.

DR. A. L. CHUTE, Boston: I want to express my appreciation of Dr. Pilcher's paper, in which I have been especially interested, since I have been impressed with the importance of doing these preliminary operations for some time. I don't feel, however, that a preliminary cystotomy is nearly as important as Dr. Pileher does, in that I do not believe it is necessary in all cases. I think that when you need to drain these cases as a preliminary step, when there is a question of renal sufficiency, it is wiser to open them up widely and establish adequate drainage, rather than to attempt intermittent drainage by means of a catheter introduced through a trocar. I assume that the man with a large residual of uninfected urine—the dangerous type of patient—is practically sure to be infected by any method by which you drain him. The urine is an especially favorable culture medium if, due to renal back-pressure, it contains a slight trace of albumin. The wider the bladder opening, the less intermittent the drainage and, hence, the less probability of kidney infection—the great danger in these cases. Likewise, constant and free drainage tends to lessen the congestion about the prostate, thus lessening the probability of troublesome bleeding at the time of enucleation. I confess that I am less troubled about the bleeding than many, since the simple method which I have used for many years of packing about a soft rubber catheter effectually controls hemorrhage.

CLOSING DISCUSSION.

DR. P. W. PILCHER, Brooklyn, N. Y.: I appreciate very much the fine things that have been said by the members about my paper. It is especially pleasant to me to have the technic of this two-stage operation accepted by the New England men, because I know how conservative they are in their prostatic work. Our main object in developing this technic has been to shorten the period of anesthesia, to lessen the surgical shock, to control the hemorrhage, to remove all obstructive disease and perform the operation in such a way that the patient will remain dry after his operations, and be up and about after the first 24 hours. This we have been able to accomplish by doing the operation in two stages, feeling our way in each case and using the Pezzer catheter, which entirely controls the output of the urine.

The most interesting development during the past few months has been the education of the bladder

after the drainage tube has been removed and substituting the Pezzer catheter within four days, we are able to have the patient resume his urination, controlling any obstruction by the Pezzer catheter safety valve.

It is remarkable in our experience how completely the suprapubic wound heals, even in the presence of an infected bladder, without any infection of the prevesical space when the technic has been followed out. It will be interesting to see if others obtain equally good results following this technic.



CLINICAL CONFERENCE OF THE NEUROLOGICAL INSTITUTE, NEW YORK.

REGULAR MEETING, MAY 13TH, 1915.

DR. J. RAMSAY HUNT in the Chair.

A CASE OF PLURIGLANDULAR DISTURBANCE OF THE INTERNAL SECRETIONS.

DR. T. S. KEYSER presented a patient from the First Division illustrating the profound effects of an apparently purely functional disturbance of the internal secretions.

There are certain definite symptoms which have been recognized for many years as being due to either hypersecretion or hyposecretion of one of the ductless glands. For example: Caleb Hillier Parry in 1825 described eight cases of enlargement of the thyroid gland in connection with enlargement or palpitation of the heart, exophthalmus, agitation, and mental distress; Sir William Gull in 1873 wrote his classical work on myxoedema dependent on the partial or complete cessation of the thyroid activity; Addison in 1855 wrote his monograph on The Constitutional and Local Effects of Disease of the Suprarenal Capsules; and in 1886 Pierre Marie described with remarkable completeness the condition to which he gave the name of acromegalia.

However, during recent years the subject of internal secretions has acquired renewed interest from the fact that numerous cases which do not present any definite clinical entity are doubtless the result of a purely functional disturbance of one or more of the ductless glands. The interrelation of the various glands is so intimate that usually there is evidence of abnormal secretion of several, but practically always one gland is primarily at fault. If the anamnesis is taken from this standpoint a condition, which otherwise seems entirely without cause, can be explained step by step, thus showing quite clearly why at a certain time a patient develops certain symptoms. For example, a woman may give a history of irregular, painful menstruation and later suddenly begin to have attacks of severe migraine or even of epilepsy. In such a case it is quite evident that there is some disturbance of the gonads primarily. However, the pituitary gland is able to compensate temporarily for this but sooner or later, due to the strain of overwork, it becomes congested and thus causes the migrainous or epileptiform attacks.

The following case is presented in order to attempt to show why a woman, apparently in perfect health, suddenly develops an illness so marked that one would scarcely recognize her as the same individual.

The patient is a nurse, aged 31, who was admitted to the hospital on February 15th, 1915, complaining of insomnia, headache, paraesthesia and nervousness.

Until the onset of the present illness she was an unusually healthy, energetic and optimistic individual. There are however, three important facts in the past history: first, she grew up very rapidly, attaining the height of five feet seven inches at the age of 15; second, menstruation began at 11 years and occurred regularly, without undue pain and with normally profuse flow until the present illness was well established; third, before or after each menstrual period she complained of nausea and temporal headache, always unilateral, followed after 15 to 18 hours by vomiting, with complete relief of the headache. Her mother and five of six sisters also had the same symptoms associated with menstruation.

In 1910, she graduated from St. Vincent's Hospital with a very good standing. Shortly after this, she became night supervisor at the New York Foundling Hospital. For two years she fulfilled her duties with the greatest efficiency, always active, energetic and much interested in her work. Except for the headaches associated with menstruation, she was well until 1912.

The present illness began suddenly in April, 1912, with insomnia. After four days of sleeplessness, she began to take various hypnotics, with little effect. When she did go to sleep, she had constant worrisome frightful dreams, from which she would awaken feeling unrefreshed. After a few weeks she became nervous, restless and depressed. She became inefficient in her work, and in a month had to give up her position at the hospital. Since this the insomnia has persisted. She gradually became more and more indolent, careless about her personal appearance, and unable to do any work at all. Before the illness began she perspired freely on moderate exertion, since then she does not perspire at all, even in an electric bath.

After several months she began to gain weight, although she says she ate less than before. Her normal weight had been 170 lbs. By July, 1913, she weighed 257 lbs.—a gain of 87 lbs. Since then her weight remained about the same. Not only has there been increase of adipose tissue, but the features have increased in size according to the statement of the patient and her friends.

In July, 1912, she began to have tight drawing headaches in the occipital region. In the morning she would feel nauseated, but never vomited. A year later she complained of a constant numb dead feeling, and a sensation of pins and needles over her entire body, but especially about the neck and shoulders. Soon after this, twitching movements of the neck and shoulders began, which she is unable to control. She thinks these movements are due to the annoying sensations which she endeavors to relieve in this way. She complains also of frequent nocturnal urination. For the last six months, menstruation has occurred every two or three weeks. The flow is rather scanty. At night during the last year she has had hot flushes. At no time has she noticed any disturbance of vision, nor has she vomited.

In comparing the patient's appearance with that indicated by a photograph taken in 1908, one is much impressed with the striking contrast. At that time she presented the picture of a normally developed, healthy, alert, composed woman, with a tendency to adiposity. At present she is fat, indolent,

careless about her personal appearance and she frequently twists her neck and shoulders, in order, she says, to relieve the tightening sensation of the skin. The skin is coarse, puffy, dry and greasy. There is no abnormal pigmentation, except a few pigmented naevi about the shoulders and the face. The hair of the head is dark, fine and shiny, and devoid of curls. The pubic and axillary hair are normal. The eyebrows terminate abruptly at the outer quarter. There is a slight growth of hair on the upper lip, but no abnormal development of hair on the trunk or extremities.

There is a general deposit of flabby adipose tissue, especially marked about the face, neck, shoulders, abdomen and hips. The breasts, which formerly were well developed and firm, are now flabby and pendulous, and seem deficient in glandular tissue. The external genitalia are very small.

The head and face are very large, but the cheek bones, and lower jaws are not unduly prominent. The teeth are not spaced. The cranium measures 13½ inches in circumference. The hands and feet do not appear enlarged. The patient is 5 feet 7 inches tall, the same as when she was 16 years old. The nails are stumpy and ridged up and down. The x-ray of the cells tarsica is entirely negative.

The eyes are slightly prominent, but the usual signs of exophthalmus are absent. The motility of the eye-balls is normal, except that on looking upwards the right eye-ball turns slightly inward. The pupils are equal, regular, and react normally. There is no disturbance of vision, nor retraction of the visual fields. The fundi are normal. There is no evidence of involvement of the other cranial nerves, or of the motor and sensory tracts of the cord.

The heart is not enlarged and no murmurs are heard. The pulse is regular, but rather rapid, varying in rate from 80 to 100. The blood pressure showed marked irregular variation,—at times as low as 120 and at times as high as 160. The temperature is usually slightly subnormal. The blood and urine are entirely negative. The patient was given levulose in increasing doses up to 500 grams without the appearance of sugar in the urine. The normal sugar tolerance for one of her weight would be 445 grams.

The history of rapid increase in weight, absence of perspiration, and polyuria, together with the character of the skin, the disposition of the fat, and the dystrophy of the mammary glands and external genitalia, subnormal temperature and reduced metabolism, is the typical syndrome of hypopituitarism associated, doubtless, with disturbance of the thyroid secretion.

However, there are several other facts in the case which bring up the question of whether the pituitary dystrophy is primary, or whether secondary to a disturbance of other internal secretions.

The patient first showed a precocity in her sexual development. At the age of 11 she began to menstruate, and showed the development of a girl 14 or 15. She also grew very rapidly between the age of 11 and 15. The headache and vomiting, although apparently a hereditary condition, might be due to some abnormality in the secretions of the genital organs, giving rise to congestion of the pituitary secondary. Menstruation occurred regularly for 20 years, but during the last four months every 2 or 3 weeks. In a woman of 45, this alone would suggest the arrival of the menopause.

The present illness began with insomnia, followed in a short time by a mental state somewhat simi-

lar to an involutional psychosis. These symptoms would hardly be due to the hypophysis or thyroid, but could be quite consistent with the climacteric. The paraesthesia and hot flushes also point strongly to the ovarian secretions.

The variable blood pressure, the pigmented naevi, and the hirsuties would also suggest involvement of the suprarenal glands.

In this case the gonads are considered to be primarily or constitutionally at fault. Until the onset of puberty the patient was never sick, not even having the ordinary diseases of childhood. This fact, together with the absence of any physical signs, such as spaced teeth, would show that all the ductless glands were functioning perfectly. However, menstruation began unusually early and was associated with severe headache and vomiting. Apparently the patient inherited a defective gonadal apparatus as her mother and sisters had the same difficulty. The pituitary gland, which is closely associated with the sexual, at once gave evidence of being affected at the menstrual periods, giving rise to migraine and vomiting, and, probably as a result of hypersecretion causing rapid growth during the early years of puberty. Aside from this however, nothing of a serious nature manifested itself until the age of 28, when it seems that the sexual apparatus which for 18 years had been functioning regularly although abnormally, became exhausted and, as a result, put still further strain on the pituitary. The latter, unable to compensate for the gonads, caused a general break in the balance of all glands of the internal secretions, thus giving rise to the numerous symptoms and signs which can be accounted for only on such a basis.

ACUTE CHOREA OF THE INFECTIOUS TYPE, RELIEVED BY LUMBAR PUNCTURE.

DR. WALTER TIMME from the Third Division showed a typical case of Sydenham's chorea which had begun six weeks previously, and had rapidly progressed in severity until the child was admitted to the New York Neurological Institute five days ago. The patient, a girl of eight years, showed upon admission all the usual symptoms in marked degree. Her choreiform movements involved the whole-body to such an extent that she could neither stand nor walk. Her speech was affected, she was unable to hold anything in her hands, and she was emotionally much disturbed, irritable and depressed by turns. She had no endocardial murmur although the heart's action was rapid and overacting. Her previous history included scarlet fever and measles a few years ago and a slight tonsillitis with febrile disturbance just before the present attack began. Upon admission she was so choreic that boards had to be placed on either side of the bed to prevent her from falling out during the spasmoid movements. No medication of any kind was given for forty-eight hours and the condition persisted as at first. Then spinal puncture was done and about 8 c. c. of fluid removed which proved to be normal. It flowed out under pressure, however, in a fine stream although the child was lying prone. A few hours after this procedure the choreiform movements became less general and in a day they remained apparent only in the hands. In three days they had practically disappeared, the child felt well and began to walk. In five days she was discharged with only the faintest suggestion of choreic twitching in the hands. So that in five days following

lumbar puncture, a most intensely developed genuine chorea succumbed; which under former treatment of Fowler's solution, salicylates, and rest, would have taken as many weeks at least. Passini (*Wiener Klin. Wochensch.*, xxvii No. 42) reports five cases that he treated by this method, three of which were cured. These three had all been acutely affected for several weeks following rheumatic attacks and were free from fever. The fluid was uniformly at a fairly high pressure and was sterile.

The unimproved cases were all of longer standing and the fluid was not under undue pressure. It would seem that we have in this therapeutic measure one that will prove of great value in selected cases of chorea of the infectious Sydenham type.

The Third Division of the Institute will shortly present a series of these cases.

A CASE OF UNILATERAL ASCENDING PARALYSIS.

DR. J. RAMSAY HUNT presented from the Second Division, a Russian Jew, 43 years of age, who was admitted to the Neurological Institute on April 12th, 1915. He is a worker in metals, chiefly brass and lead, but has never had symptoms indicative of lead poisoning. He denies lues and has never indulged in alcohol or tobacco. There is no history of injury. His health, prior to the onset of the disease from which he now suffers, had been excellent and he can recall no previous illnesses.

The family history presents several points of interest and is as follows:

His father and mother were first cousins and had 5 children: The first a girl, is living and in good health at the age of 44. Two brothers aged 36 and 25 respectively are living and well. One sister is now 37 years of age, and is a patient of the New York City Home. She is paralyzed and cannot walk. Her symptoms began at the age of 30 and were gradually progressive. (Dr. Climenko reports that she has a unilateral local lesion in the cervical region with spinal hemiplegia and contralateral sensory disturbances).

The mother is living at the age of 73 and is in good health. The father is said to have had a lameness of one leg and to have walked with a cane, but the account of this trouble is obscure, and it was probably arthritic and not spinal in origin.

Onset: The first symptoms of the disease appeared 5 years ago and consisted of a weakness of the left leg. At the beginning, the weakness was chiefly noticeable in the foot and was accompanied by some stiffness of movement, so that the toe often seemed to catch and meet obstructions. This gradually progressed, ascending the extremity until finally the movements of the knee and the hip were also affected. For three years these symptoms were limited to the left lower extremity and during this time there were no pains or paraesthesiae, but not infrequently the muscles of the leg would cramp and contract, which caused some pain, but rubbing the parts and a change of position would bring prompt relief. Such spasmodic seizures often occurred in the night and would awaken him.

Soon after the beginning of the illness, his sexual power began to fail and for the past three or four years he has been impotent, with, however, the preservation of libido. For the past two years there have been some slowness and delay on the act of micturition, but never any incontinence. He is also constipated. Two years ago, i.e., three years after

the onset of stiffness and weakness in the left leg, a similar disturbance became manifest in the left hand and arm. This appeared very insidiously, and as in the leg, progress had been slow and gradual. There were no pains or paraesthesiae, simply slowness, weakness and stiffness of the movements. He is not conscious of any disturbance of speech or articulation, or of the movements of the neck.

He has at no time had headache, or vertiginous seizures or faints, and his eyesight is good.

Subjectively, the right side is perfectly normal, with the exception of occasional muscle cramps in the right leg and arm. Otherwise, he claims that this side is as active and strong as ever. There is some variation, apparently in the weakness of the left side, while the spastic paralysis from which he suffers is constant. He tires very readily and after walking $\frac{1}{4}$ to $\frac{1}{2}$ a mile he must rest. After a brief rest he is able to continue. On some days he is able to walk better and farther than on others. The sensation induced by walking, however, is one of pure fatigue and there are no pains, paraesthesiae or painful cramps of the extremities. He chews and swallows with perfect ease and there is no diplopia and no impulsive emotional outbursts.

Examination. He stands perfectly well alone and on a narrow base, on closure of the eyes there is no swaying. The attitude is somewhat hemiplegic and the gait is typically so, carrying the arm flexed and swinging and dragging the leg in the typical hemiplegic manner. The facial innervation, voluntary and emotional, shows a slight weakness of the lower branch on the left side. The tongue is protruded in the median line, no fibrillation or atrophy of the muscles of the tongue.

The pupils are equal and react promptly to light and accommodation. The ocular excursions are normal, no nystagmus. Dr. HOLDEN reports that the fields and optic nerves are normal. The innervation of the pharynx and muscles of mastication is normal. The palatal reflex is active and the jaw-jerk is active. The hearing and smell are normal and equal in the two sides.

The spine is normal in contour and in movement. There is no spinal rigidity and no pain on movement or jarring.

In comparing the movements of the arms there is some weakness and a distinct slowing of the movements on the left side. There is however, no tremor and no ataxia. The tendon reflexes including the periosteal reflexes of the upper extremities are exaggerated and especially on the left.

The left leg is weak and spastic; movements of the right leg are strong and free from spasticity. The knee jerks and ankle jerks are exaggerated on both sides, but to a much greater degree on the left. On the left side there is ankle clonus and an exhaustible patellar clonus both of which are absent on the right.

The Babinski and Oppenheim phenomena are typical and constant on the left. At times, the Babinski reflex is also elicitable by stimulation of the right plantar region, but it is inconstant. The Strümpell phenomenon is present on both legs. The abdominal and cremasteric reflexes are usually absent on both sides. Occasionally faint responses were obtained on the right side. Associated movements were not demonstrable. There is nowhere any evidence of localized muscular atrophy or fibrillary twitchings. The general muscle-volume of the left arm and leg is less than that of the right.

The Right	leg	measures	13½ inches.
Left	"	"	13 "
Right	thigh	"	18¾ "
Left	"	"	18¼ "
Right	arm	"	10½ "
Left	"	"	9¾ "
Right	forearm	"	10 "
Left	"	"	9½ "

There is no ataxia or tremor of movements of the lower extremities.

The general sensations, both superficial and deep, are quite normal.

The heart and lungs and abdominal viscera are negative. The examination of the urine, blood and cerebrospinal fluid by Dr. KAPLAN are negative. There are no granular degenerations of the erythrocytes. (No lead on the gums). The Wassermann reaction of the blood and cerebrospinal fluid is negative, it contains no excess of globulin and only one cell to the cu. mm. Fehling's reduction is +.

Remarks. The case belongs to that rare clinical type which was first described by DR. CHAS. K. MILLS as "*unilateral progressive ascending paralysis*," and caused by a unilateral degeneration of the pyramidal tracts. Later DR. SPILLER demonstrated microscopically a degeneration of the pyramidal tracts in a case which began as unilateral ascending hemiplegia, later passing into triplegia. That this symptom complex may be simulated by diseases other than primary pyramidal tract degenerations has been shown by PATRICK, (*unilateral ascending paralysis in paralysis agitans*) and by POTT'S in multiple sclerosis. Following MILLS, OPPENHEIM has also indicated the possibility of unilateral, postero-lateral sclerosis; viz; an ascending hemiplegia complicated by sensory disturbances.

I have observed unilateral ascending paralysis in a case that years later terminated in the clinical picture of amyotrophic lateral sclerosis.

The case just reported I regard as a primary lateral sclerosis with unilateral localization of the disease. Doubtless later, the other pyramidal tract will show similar involvement and the importance of such a case is to emphasize the possibility of a unilateral limitation in what is usually a bilateral and systemic disease.

Book Reviews.

Human Motives, by JAMES JACKSON PUTNAM, M.D., Professor Emeritus, Diseases of the Nervous System, Harvard University. Mind and Health Series, Edited by H. ADDINGTON BRUCE, A.M. Little Brown & Company, Boston, 1915.

Dr. Putnam describes the main purpose of this small volume to be the "focussing of attention on the aid afforded by modern psychology to the upbuilding of a really sound and practical philosophy of life." In the theory of psychoanalysis as promulgated by Freud and his followers, Dr. Putnam sees the broadest implications and finds in the theory not only a means of arriving at important facts in individual

lives but also the possible foundation, or at least support, of a philosophical system. Although always courteously expressed, he has little sympathy with the materialistic view-point. As he believes it, the material world must find its ultimate explanation in a world of ideas and vital energy. "Physics," he says, "can come to its rights only through metaphysics;" and again "The genetic method leads straight and of necessity to the philosophic method." On this general basis he studies motives and it need hardly be said that the book is broad minded, uplifting and widely suggestive. The chapter headings are as follows: I, Main Sources of Motives; II, The Rational Basis of Religion; III, The Psychoanalytic Movement; IV, Educational Bearing of Psychoanalysis; V, Instincts and Ideals; VI, An Attempt at Synthesis. We sometimes wish that Dr. Putnam were not so sparing of others' feelings and were less modest in the expression of his own well considered opinions, but it is evident that beneath his kindly words lies a conviction that he has a message for those of narrower vision. The book should be widely read especially as a philosophic expression of the significance of certain far reaching modern tendencies in medicine. The philosophic approach to medical problems is sadly needed and this Dr. Putnam supplies in this readable treatise on Human Motives.

Report of the Massachusetts State Board of Health. Boston: State Printers. 1914.

The recently published forty-fifth annual report of the State Board of Health of Massachusetts gives a record of the activities of that board for the year ended November 30, 1913. In the matter of antityphoid inoculation the following report is made:—

"During the year 21,014 ampoules of anti-typhoid vaccine have been distributed for use by the citizens of the Commonwealth, but of this number 10,526 ampoules were utilized by the militia. This immunization of the militia, affecting as it does a large body of young men in the prime of life, at an age peculiarly susceptible to typhoid infection and subjected, at the time of professional manoeuvres, at least, to increased exposure to polluted water supplies, cannot but have an appreciable effect upon the incidence of the disease.

There is every reason to believe, furthermore, that the practice of inoculation of nurses, inaugurated two or three years ago at a considerable number of training schools throughout the Commonwealth, has become increasingly prevalent, with undoubtedly beneficial effects."

The total number of samples of food and drugs collected and examined during the year was 9727. One hundred and sixty-one prosecutions were made in the various courts of the Commonwealth. Of these, 116 resulted in conviction, 2 were dismissed by order of the court, 1 dismissed for lack of jurisdiction and 1 no-

crossed. Four thousand four hundred and ninety-three dairies were examined and the attention of 1543 proprietors and boards of health and of cities and towns called to objectionable conditions. The board received notification of 66,249 cases of infectious diseases. The fatality from typhoid was 11.7% of cases reported, diphtheria 9.3%, scarlet fever 3.6%, and measles 1.1%.

Transactions of the American Society of Tropical Medicine. Vol. 9. New Orleans, La. 1914.

This volume contains the papers read before the society at its Eleventh Annual Meeting held at Boston on May 29 and 30, 1914, together with papers published under its auspices. The volume opens with the address of its president, Dr. Richard P. Strong, in which he calls attention to the opportunities for investigators and for public health work in tropical diseases, the need for the endowment of a school for the training of physicians in this branch of medicine and the opportunity for trained physicians in Mexico and the American Colonial Medical Service. Dr. Aristides Agramonte of Havana, Cuba, writes on "The Late Outbreak of Plague in Havana," in which nineteen cases occurred with three deaths. Dr. Victor Heiser, Director of Health for the Philippine Islands, contributes a long article on the treatment of leprosy by the hypodermic use of chaulmoogra oil mixture, in which he states that use of this method has given more consistently favorable results than any other. It produces apparent cures in some cases, causes great improvement in many others and arrests the progress of the disease in almost every instance.

Dr. S. Burt Wolbach, of Harvard University Medical School, in an article on the filterability and biology of spirochaetes, states that the method of filtration as a means of separating spiral organisms from ordinary bacteria will probably hold good for other saprophytic and pathogenic spirochaetes and allied micro-organisms; that organisms larger than many bacteria will pass the Berkefeld V, N, and W filters, such as Spirochaeta duttoni, Spirochaeta elusa, Spirochaeta biflexa, intestinal spirochaete; and that there is no evidence of spirochaetes multiplying by any other method than single fission. Dr. Edouardo Liceaga of Mexico City gives an account of the war waged against yellow fever and the mosquito in Mexico. The campaign began in 1903 and has continued without interruption at any season of the year. Its results have been, not only to do away with the serious yellow fever epidemics of former years, but to extinguish the endemic secular foci such as those hitherto existant at Vera Cruz and Merida. Dr. Richard P. Strong gives a brief account of his first expedition to South America in 1913, and his investigations of various tropical diseases, such as malaria, verruga peruviana, Oroya fever and

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PREVALENCE OF SYPHILIS IN THE ARMY.

AN attentive reading of the latest bulletin issued by the medical branch of our army justifies one in regarding apprehensively the ravages of syphilis. Dr. Vedder¹ has made an exhaustive study of this disease in the various branches of the service, including soldiers at the United States Soldiers' Home at Washington, D.C., the cadets at West Point, recently enlisted soldiers, and men who had just left the army. His diagnosis was made exclusively by means of the Wassermann reaction, which has been in use in the army since 1909. He states that a double plus Wassermann is considered to be a positive indication of syphilis, for in 1049 such cases where means of confirmation of the diagnosis existed there were found only four cases of error. A single plus Wassermann is considered as almost certain evidence of syphilis, as it was found to be 99% exact.

Captain Vedder reports the results of the examination of recently enlisted recruits who had passed the physical examination and were therefore presumably non-syphilitic. Among these men he found the double plus Wassermann in 7.75% and the single plus in 9.02%, that is, about one of them in six had syphilis. The vast majority of these men were between the ages of twenty-one and twenty-four. Vedder concludes from this that about 20% of all adult white males are syphilitic.

We are inclined to think that this is too pessimistic, for it would seem that the career of an enlisted man in the army, as it is at present constituted, is not sufficiently alluring to attract a very high class of recruit. It is a well known fact among army medical officers that the present mental survey given recruits is not searching enough; and Captain Edgar King, of the United States Army Medical Corps, who has published his researches into mental disease and defect in the army as Bulletin No. 5 of the War Department, is at present endeavoring to get a measure passed which will provide for a more adequate mental examination of applicants for enlistment.

As a result of his examination of the cadets at West Point, Captain Vedder has come to the conclusion that 5.46% of them are syphilitic. This is rather appalling when we consider that if, about fifteen years from now, this country were involved in a war, some of these officers, by then advanced to the grade of colonel, or even higher, may be in the first stages of general paresis.

In his examinations of the enlisted men, Vedder found that among the white soldiers 16.08% have syphilis, and argues that, contrary to general belief, the morale of the enlisted man must be somewhat higher than of the man in civil life of about the same class. Prospective recruits are subjected to a very rigid physical examination, and those showing evidences of syphilis are rejected. This has the effect of making the soldier a picked man physically, while the rejected candidate remains in civil life and helps to swell the average of syphilitics there. Then, too, soldiers acquiring syphilis in such a form as to incapacitate them are discharged from the army, and their numbers add to the percentage of syphilis in civil life.

Among the negro soldiers, 35.30% were found to be syphilitic. This agrees with the observations of writers on syphilis in the negro, some of

¹ The Prevalence of Syphilis in the Army, by Capt. Edward B. Vedder, U. S. A. Bulletin No. 5, War Dept.

whom state that approximately half of all adult negroes are syphilitic. All of them agree that syphilis is much more common among negroes than among white men.

Dr. Vedder has made a number of other studies which lack of space forces us to omit, but which are worth reading, such as studies of syphilis in the Porto Rican troops, the soldiers at the Government Hospital for the Insane, the members of the United States Soldiers' Home, and military convicts.

As might be expected, Captain Vedder has a number of conclusions to draw from his exhaustive studies. He believes that of the recruits who get into the army about 17% are syphilitic and a majority of these have never been diagnosed. Syphilis is much more frequent among the negro soldiers. The percentage is lower among army men than among men of a similar class in civil life. He expresses his belief that syphilis is a greater menace to public health than any other disease, not excluding even tuberculosis.

To check its ravages in the army Captain Vedder recommends the rejection of all syphilitic recruits, the presence of syphilis to be determined by the Wassermann reaction, or if this rejection is for any reason impracticable he thinks that only those syphilitics should be admitted who show no active signs of the disease, and that these should be given appropriate treatment during the whole of their stay in the army.



THE MENACE OF A DECLINING BIRTH-RATE.

In the issue of the JOURNAL for Sept. 9 we commented editorially on certain aspects of the effect of education upon eugenics, particularly with reference to the decline of birth-rate, often observable among more highly educated types. From some points of view, perhaps, this phenomenon, much though it may be regretted, need not be regarded as a cause of alarm. In his leading article in this week's issue of the JOURNAL, Dr. Otis, discussing the conflict between nature and civilization, points out that the lamentable fact of the constant elimination of higher types must probably be accepted with resignation. Under existing conditions it cannot be prevented, and can best be combated only by attempts at eradication or improvement of inferior types.

To decrease the infant death-rate remains at present our most effective method to offset the menace of a declining birth-rate.

In England, unfortunately, even this method seems, temporarily at least, to be yielding unsatisfactory results. The past year doubtless presents unusual circumstances, yet though the decline in the birth-rate might well be accelerated by war conditions, the infant death-rate in that country ought not to have increased as alarmingly as in point of fact it has done. Commenting editorially upon this situation, the issue of the *Lancet* for Sept. 4 says in part:—

"Recent statistical returns of the births and deaths of infants in this country are disquieting; regarded individually they are bad enough, but taken collectively they are distinctly alarming. The continued fall in the birth-rate, which has now reached the lowest level heretofore recorded, may have many explanations, but the factor of the deliberate limitation of families, whether from provident or selfish motives, can no longer be ignored. The dissemination of knowledge with respect to the use of contraceptives has undoubtedly contributed to this result, not only among the upper and middle classes, with whom their employment has been reduced almost to an exact science, but even among the poorest, with whom such practices were quite exceptional a decade ago. Whether this explanation has any bearing on the falsification of the prophecies of the searmongers with respect to 'war babies' still remains to be seen, but from facts which are accessible to all those who keep their eyes open it is by no means improbable. While on these and other grounds the fall in the birth-rate is understandable, the figures published with respect to the mortality of infants under one year of age during the current year certainly demand more explaining than is afforded by the assumption that the position is due to a high prevalence of epidemic disease engendered by the unusual circumstances or to the dearth of doctors and nurses. That epidemic diseases have exacted a larger toll of infant life than usual cannot be gainsaid, but as an offset to this we must remember that the meteorological conditions have been distinctly favourable, while the many organizations which have been engaged in alleviating every form of distress have made it highly improbable that poverty has been concerned in the results. Indeed, it may almost be claimed that there has never been a time in the history of our country more free from want of employment, and the destitution which want of employment brings in its train, than the present moment."

"So serious does the position appear to those who are actively engaged in combating deaths among infants that the National Association for the Prevention of Infant Mortality has arranged for a conference at the Mansion House on Oct. 28, at which the Lord Mayor has consented to

preside, and at which the causes that are responsible for the present state of affairs will be fully discussed by many of the foremost authorities on the subject. It is to be hoped that out of the mouths of these many counsellors much wisdom will result, and that their advice, in addition to the benefits which are confidently expected from the operation of the new provisions of the Notification of Births Act, will help to relieve a situation which is beset with many national dangers."

The *Lancet* speaks with laudable optimism, yet probably little of permanent accomplishment may be expected of artificial regulations and measures, however wisely conceived. After all, the causes of declining fertility probably lie deep in race temperament and its reaction to changing environment. The will to survive and dominate is the first essential to doing so.

Precisely the lack or weakness of this will constitutes the real menace of the declining birth-rate which is its manifestation. The reasons for this "abnegation of the will to live" are not far to seek. They are pointed out by the two authors whose work on this subject we have already quoted.¹ The extent to which they have become operative throughout the world, especially in English-speaking communities, is undeniable. In New South Wales, for instance, the royal commission, appointed to investigate the declining birth-rate in that country, reported in part as follows, after a careful study of local birth statistics:—

"We are satisfied that the statistics show:

(a) That a decline of birth-rate in recent years has characterized all the states of Australia and New Zealand; also the United Kingdom; also many of the large cities of Europe, United States, and South America.

(b) That there was in New South Wales a sudden remarkable fall in birth-rate in the year 1899, followed by a continuance and rapid decline, until, in 1902, the total decline had exceeded 10 per 1000 population.

"There is no evidence of any increase of physiological sterility in women in New South Wales. . . .

"The conclusions which we draw from the evidence on this branch of our subject are inevitable, namely, that there is a diminution in fecundity and fertility in recent years, which is due to:

(a) Deliberate prevention of conception and destruction of embryonic life.

(b) Pathological causes consequent upon the means used and the practices involved therein."²

If these facts be true,—and experience and observation go far to show them so,—there would appear little prospect of abating materially the menaces of a declining birth-rate merely by reducing infant mortality. To check the declining birth-rate induced in any nation by the circumstances of civilization, there must be a genuine regeneration of race instinct. The unconscious desire must be replaced by the conscious will to survive. Then, and then only, may there be expected a cessation of the constant destruction of higher types. Doubtless this adjustment of evolutionary economy will ultimately be made. Meantime it appears inevitable that families and races must continue to perish through lack of adequate will to persist.



A NEW THEORY OF THE NEUROTIC CONSTITUTION.

THE make-up of the neurotic has always been a fascinating subject. For many it has been a will-o'-the-wisp which has led them on to dangerous ground, where they with great difficulty held their balance, if they did not actually fall. The recent psycho-analytic movement led by Freud and propagated far and wide by his able followers, is a specific illustration of a definite effort to understand the neurotic individual.

Alfred Adler, of Vienna, a disciple of Freud, impelled by rather original concepts which found their birthplace in his mind, now offers a new theory of the make-up of the neurotic individual. This theory is sufficiently important to demand consideration by those who make it their business to understand their fellowmen.

In brief, Adler's concept of the character of the neurotic individual may be presented as follows: The neurotic is characterized by definite organic defect or inferiority. This somatic deficiency or inferiority, being concerned with one or more functions, and being unknown to the individual, is thus unconscious. The subnormal organs or functions are excessively unstable, irritable, sensitive, easily disturbed and unable to withstand or adapt to excessive or unusual stress. The other correlated functions attempt to compensate for the defective activity of the abnormal function or functions of one sort or another. But in the neurotic, complete and successful compensation fails to take place and there follow internal disharmony, unrest and instability of such a degree that the individual

¹ See JOURNAL, page 298.

² In last week's issue of the JOURNAL we pointed out editorially some of the evils of the artificial reduction of the birth-rate by methods of voluntary control.

finally becomes aware of his organic insufficiency and makes conscious efforts to compensate successfully. In efforts toward this end, the neurotic endeavors to hide his defects by various devices of concealment, and in so doing goes to extremes and overdoes himself, so that various peculiar traits and characteristics are developed, which constitute the peculiarities of the neurotic condition. Furthermore, in spite of these handicapping defects, the neurotic struggles to arrive at a state of equanimity and equilibrium, so that he will be like others. In this respect, too, he overdoes himself, and finds himself striving to outdo others, to excel them, to be all-powerful and superior, to attain self-maximization, or, in Adler's manner of expressing it, full masculinity.

The neurotic thus has a two-fold life's battle—to hide and make up for his organic defects and, despite them, to achieve full power and masculinity. It is but natural to expect that he will frequently have recourse to unusual, immature, even child-like methods of reaction. In certain cases and under certain situations compensation is impossible and then we find varying degrees of decompensation developing, from simple anxiety to the many psychoneurotic and psychotic disorders. But even in decompensation there is for the individual a salutary recourse, for in this world of unreality which he builds up for himself he can at least continue to survive without immediate and complete disintegration of the personality.

It now remains to prove or disprove the truth of these ideas. Even though this concept may not apply *in toto* to the neurotic, the general idea may at least be found useful in the elucidation and understanding of many apparently peculiar mental states, normal or abnormal.

MEDICAL NOTES.

NEW YORK DEATH RATE.—Despite the fact that during the week ended Sept. 18 New York experienced the warmest and most humid weather that has visited the city during September in more than a score of years, the death rate was .83 per 1000 population lower than during the corresponding week of last year. Especially noteworthy is the fact that the deaths from diarrhoeal diseases under five years were fewer than during the week ending September 19, 1914.

The following causes of deaths showed a decrease: Scarlet fever, diphtheria and croup, pul-

monary tuberculosis, Bright's disease and nephritis.

During the week there were four deaths from sunstroke, as compared with 1 death from the same cause during the corresponding week of last year.

The deaths during the week numbered 1291 with a rate of 11.60, as compared with 1330 deaths and a rate of 12.43 for the week ending September 19, 1914. The difference of .83 in the weekly rate means a saving of 92 lives. The death rate for the first 38 weeks of 1915 is 13.49, as compared with 13.94 for the first 38 weeks of 1914.

INCREASE OF ANTI-TYPHOID VACCINATION.—The United States Public Health Service reports that the use of typhoid antitoxin is rapidly becoming general. It is estimated that during 1914 over 100,000 persons throughout the country were immunized, and it is believed that in 1915 the number will exceed 300,000. In four counties of North Carolina, where campaigning has been conducted, it is estimated that 20,000 people will be immunized.

INHERITANCE OF TEMPERAMENT.—In the August issue of the *Proceedings of the National Academy of Sciences* is an article on "Inheritance of Temperament" by Dr. C. B. Davenport, of the station for experimental evolution, Carnegie Institution, Washington, D.C. This paper, which is based on a careful statistic study of 89 family histories, suggests that the various types of human temperament are dependent on definite, heritable physical factors.

"Temperament is hereditary and as little alterable as stature. There are involved in the inheritance of temperament two factors,—one which induces more or less periodic excitability and whose absence results in calmness, another which makes for normal cheerfulness and whose absence permits more or less periodic depression—these factors being inherited independently and occurring in any combination. Persons may be divided into calm, nervous, or choleric according to their degree of excitability, and into cheerful, phlegmatic and melancholy, according to their degree of cheerfulness or its opposite. There are, therefore, nine classes of temperament formed by combining these two classes, namely, choleric-cheerful, choleric-phlegmatic, choleric-melancholic, nervous-cheerful, nervous-phlegmatic, and so on."

"The statistical study of the 89 carefully described family histories seems to bear out this hypothesis, because the different classes of temperament actually occur with about the relative frequency which would be expected from the hypothesis and the usual laws of inheritance."

DECLINE OF SWEDISH BIRTH RATE.—The census of Sweden, which has recently been com-

pleted, shows the present population of that country to be 5,679,607. It also shows a steady decrease of marriages and births, so that during the past year the birth rate has been lower than at any time since vital statistics have been kept in Sweden.

LONDON DEATH RATES IN JULY.—Statistics recently published show that the total death rate of London for July, 1915, was only 11.1 per 1000 living inhabitants. Among the several districts and boroughs the highest rate was 16.7 in the old city precincts, and the lowest was 6.7 in Hampstead on the north.

ENDOWMENT OF DUNN LECTURESHIP.—It is announced that the trustees of the estate of the late Sir William Dunn have given to Guy's Hospital the sum of £25,000 sterling, for the endowment at Guy's Hospital Medical School of the Sir William Dunn lectureship in pathology.

THE TALL OR THE SHORT SOLDIER.—At a meeting of the Royal Sanitary Institute in London the question of whether the tall man or the short man made the better soldier was discussed at some length. Dr. Pembrey of Guy's Hospital stated that: "In times of peace height is a recognized standard for recruits, and most men will agree that the tall soldier is more imposing, ducile and dignified than the short one." He, however, goes on to state that measurements may not be an accurate estimate of the value of a soldier who has, first of all, to bear the physical and mental strain of the campaign, to march, to shoot straight and to subordinate his personal interests to those of his race and country.

"Some of the advantages of the short man are his relatively greater agility and activity and relatively greater surface, which in hot weather and doing muscular work is a decided advantage. There are mechanical advantages and disadvantages in height. A consideration of these in relation to the work of the soldier results generally in favor of the little man."

Average heights of the men of the divisions of the British Isles have been computed as follows: for Scotsmen, 68.71 inches; for Irish, 67.90; for English, 67.36; and for Welsh, 66.66, the average for the kingdom being 67.66 inches, with a weight of about 170 pounds.

MORTALITY AMONG SAILORS.—It has been computed, from a classification of 8000 deaths in two years in the English merchant service, that accident and consumption cause the greatest number of deaths of sailors. Nervous diseases come next with pneumonia and bronchitis, and heart disease and Bright's disease rate fairly low. Alcoholism is responsible for only one per cent. of the deaths. The mortality rates are everywhere much higher than for the population on shore.

EUROPEAN WAR NOTES.

MAINTENANCE OF HOSPITALS IN PAIGNTON AND PETROGRAD.—It is announced that in spite of the withdrawal of American Red Cross Hospital units from Europe on October 1, the American Women's Hospital at Paignton, Devonshire, will continue to be maintained during the winter by private support. It is similarly announced that the American colony at Petrograd not only has voted to continue the maintenance of the American Hospital in that city, but has raised funds to pay for its enlargement from its present capacity of 28 beds to a capacity of 40.

APPOINTMENT OF DR. BLAKE.—Report from Paris announces that on Sept. 18 Dr. Joseph A. Blake resigned from the American Ambulance Hospital at Neuilly to accept an appointment as surgeon-in-chief of a new general hospital at Risorangis, near Fontainbleau, which will take care of the British wounded at Versailles. This hospital is to have twice the capacity of the American Ambulance.

OPENING OF LANGENBECK-VIRCHOW HAUS.—It is announced that the new Langenbeck-Virchow Haus, to be occupied by the Berlin Medical Society and the German Surgical Association, was opened on August 1. The formal dedication will take place at the close of the war.

NEEDS OF AMERICAN RED CROSS.—At the close of its first year of work among the belligerent countries of Europe, complicated as it has been by urgent calls for assistance from other parts of the world, the American Red Cross finds itself in acute need of funds for the continuation of its activities during the coming winter. The following letter from Miss Mabel T. Boardman at Washington to Miss Louisa P. Loring, emergency secretary of the Red Cross for Massachusetts, explains some of the plans of the organization for the coming season. It is earnestly to be hoped that there will be an ample public response to the call for funds from an organization whose activities have reflected such great credit upon the United States in the past and especially during the present war:

"Dear Miss Loring:—Your second letter of the sixteenth is just received. I think the suggestion you make of replenishing our contingent fund a most excellent one. We so often have sudden calls upon it, and it is becoming very much exhausted. For example, Admiral Caperton telegraphed to the Navy Department the other day begging the Red Cross to send him \$1000 for the destitute in Hayti. One woman and one child had already been found dead from starvation in the market place. We were able to send the \$1000, greatly to the gratification of

the navy and of the poor people who are suffering there. The money we sent to the Samoan Islands last winter, though only \$2000, has been a great help to the poor there. Not long ago it was \$500 worth of food supplies sent from Manila to save the lives of some hundreds of people in the Ladrone Islands that the governor of Guam reported to be starving. This will tide them over until Japan, which has taken the islands, can look out for them, and we have written the Japanese Red Cross asking it to take over the relief of these Ladrone Islands.

"The Mexican situation continues as you know, very complicated; but Mr. O'Connor, our agent, is, according to official reports, doing very fine work in Mexico City, and Mr. Weller, another agent of ours, has just obtained consent from the governor of Saltillo to take any food there under guard, and we are sending eight more earloads to Monclova and Saltillo. Mr. Weller reports that when he got to Saltillo the doctors told him the day before seven persons had died, and, the autopsy showed, from absolute starvation, and that the bodies contained no food. The public officials made them put it down as death from stomach trouble, which seemed ironical, as there was nothing to trouble their poor starving stomachs. Mr. Bonsal, whom we sent there is just back and he says the suffering which is increasing all the time, is beyond words. All our funds for Mexico have been used up, as we have had to send our last \$6000 to Mr. O'Connor in Mexico City, but we do not want to put out a general appeal until the Government's policies are more definitely settled, both here and in Mexico.

"I am going to see that the last contributions given you (\$300 and \$500), which you say are undesignated funds (these two donors especially desired that their gifts should go to any department preferred), are put in the Mexican fund, as I believe nowhere is there really more acute suffering than there, and there really is nobody but the United States who can or will help them.

"Yours sincerely,

"Mabel T. Boardman."

Therefore, the undesignated fund in Massachusetts will now be collected for the American Red Cross to be expended in any way that is deemed most expedient at headquarters, unless the donors state that their gifts shall go to the war relief department, which also continues as in the past year.

All donations will be gratefully received by F. L. Higginson, Jr., treasurer, Massachusetts Red Cross, 44 State street, Boston.

SHORTAGE OF PHYSICIANS IN ENGLAND.—In the issue of the *JOURNAL* for July 22, we noted the increasing shortage of medical men in Great Britain, especially in the rural districts where the condition has become really serious. The issue of the *Lancet* for August 28, is students'

number. There is a special editorial discussion of the situation as follows:—

"That our medical schools will go very short of students is certain, and this will mean a dangerously small list of medical practitioners to minister to the needs of the country in the near future. The position is inevitable. The spirit which will lead young men of the military age and the educated class to join the army must have this effect, but it is the duty of the medical profession to face the difficulty and to make the best of it.

"The great work which the medical contingent with the army and navy has accomplished in the present war will act later as a stimulus to enthusiasm for our calling, and the shortage which must occur in our ranks for the three or four years following—say, 1917—will speedily remedy itself, when our social world resumes, as far as altered circumstances will permit, the scheme which we had, with considerable lack of provision, come to regard as the normal one.

"The war found the number of the medical profession in this country already disquietingly low, and with indications of further sagging in those numbers. The figures indicate a serious shortage of medical men for the years following the war. Not only has a large number of young men who otherwise would be beginning or pursuing their medical studies been absorbed, but, unfortunately, a serious toll was already taken last autumn of those who, being already nearly qualified, would have been able to practise their professions as qualified men in a few months.

"The future will see an increased demand for medical men, and their prospects of success will be so great that the aspirants will assuredly be numerous. And there will be an improvement in the conditions which have prevailed in the past, not only because the profession of medicine will share in sociological progress, but because the record of the work of medicine throughout the war has been such that it must lead to a closer relationship between the medical profession and the public.

"The British public are taking a more intelligent interest in these things, and the energy with which lay bodies are working in coöperation with the medical profession in carrying out various schemes for the well-being of the people may be taken as an indication that the health of the nation will be a first consideration of the immediate future—which means that there will be a great demand for medical men at the close of the war.

"And this is the essential message to the students now in the schools. They are already wanted as qualified men, and in the near future they will be wanted even more urgently. It is a patriotic duty, imposed upon them by the conditions of the world, that they should spare no effort to pass all their tests in the shortest legal time, while by doing so they will reap the double reward of good citizenship and worldly success."

WAR RELIEF FUNDS.—On Sept. 25 the totals of the principal New England relief funds for the European war reached the following amounts:

Belgian Fund	\$272,319.67
Polish Fund	50,630.04
British Fund	33,422.39
Italian Fund	3,418.10

BOSTON AND NEW ENGLAND.

WELFARE OF BABIES IN HOT WEATHER.—The extreme heat of week before last added greatly to the work of the Milk and Baby Hygiene Association at its twelve stations throughout the city. During four of the hottest days 1854 children were looked after, and the mothers instructed in various practical ways of keeping the babies cool. The greatest need now confronting the Association is money for a second nurse for its milk station in the North End Union, where there is a registration of 229 babies. Unless more funds can be raised the special summer nurse will have to leave on September 30. The work of the organization, requiring a budget of \$24,000, is carried on entirely by voluntary subscriptions.

HOSPITAL BEQUESTS.—The will of the late Charles E. Davis, of North Andover, Mass., which was filed in the Essex Probate Court of Salem, Mass., on Sept. 21, contains a bequest of \$5000 to the Salem Hospital for a child's free bed. The Salem Hospital and the Massachusetts General Hospital are among the four residuary legatees.

The will of the late Maria J. Shepherd, of Revere, Mass., which was recently filed for probate in the Suffolk registry, contains bequests of \$1500 to the Lynn (Mass.) Hospital, and \$400 each to the Boston Floating Hospital and the New England Peabody Home for Crippled Children.

The will of the late Mary Ann Smith, of Chelsea, Mass., who died on Sept. 9, was filed on Sept. 19, in the Suffolk probate court. It contains bequests of \$500 each to the Rufus S. Frost General Hospital, Chelsea, and the New England Deaconess Hospital, Longwood. Both these institutions are also named as residuary legatees.

QUINCY HOSPITAL TRAINING SCHOOL.—The annual graduation exercises of the Quincy (Mass.) Hospital Training School for Nurses were held in that city on September 2. The principal addresses to the graduates were made by Dr. George W. Gay of Boston and by Dr. John A. Gordon of Quincy. Diplomas were awarded to four pupil candidates.

MEETING OF SOCIAL HYGIENE ORGANIZATIONS.—On Friday of next week, Oct. 8, will be held at the Copley-Plaza Hotel, Boston, the annual

meeting of the American Social Hygiene Association in conjunction with the Massachusetts Society for Social Hygiene. The former organization was established in 1913 by the amalgamation of the American Federation for Sex Hygiene and the American Vigilance Association. The state society is an outgrowth of the former Massachusetts Society for Sex Education.

"The joint session will be held at the Copley Plaza on Oct. 8. The morning session will be devoted to routine business, followed by luncheon; but at the afternoon and evening sessions, to which the public is invited, addresses on timely subjects will be treated from the moral and scientific point of view. Among those on the program at the afternoon session are Dr. John D. Trawick of Louisville and Dr. Rollin H. Stevens of Detroit, both of whom are city health officers; Dr. Thomas W. Salmon of New York City, secretary of the National Commission on Mental Hygiene; Dr. George A. Coler of Rochester, N. Y.; Dr. Allan J. McLaughlin of the Massachusetts State Board of Health; Samuel H. Adams of New York, one of those who carried on the American Medical Association propaganda against impure drugs and foods; Dr. S. S. Goldwater, health commissioner of New York; Dr. C. E. Banks of Washington, D. C., a Federal health officer; Dr. Edward L. Keyes, Jr., of New York; Dr. F. N. Whittier of Brunswick, Me.; and Dr. C. F. Dalton of Montpelier, Vt."

Dr. David L. Edsall of Boston will preside at the evening session.

Obituary.

SIR PETER EADE, M.D., LOND., F.R.C.P., LOND.

DR. SIR PETER EADE who died in Norwich, England, on August 12, was born at Acre, Norfolk, in 1825, the son of a local surgeon. He began the study of medicine as apprentice to his father, then in practice at Blofield and continued it under the eminent surgeon, Mr. John Greene Cross, F.R.S., at the Norfolk and Norwich Hospital. At the conclusion of his apprenticeship he entered Kings College, London, where he had a brilliant career as a medical student and graduated in 1847 with a gold medal and several prizes. He received the degree of M.D., in 1850.

Though offered an assistant surgeoncy in the Indian Medical Service, Dr. Eade preferred to settle in practice with his father. In 1856 he removed to Norwich where he was appointed to the Norfolk and Norwich Hospital in 1858. Here his service was that of both a physician and a surgeon, and in 1873 he was elected a fellow of the Royal College of Physicians. He was also consulting physician to the Norwich Public Dispensary, the Jenny Lind Infirmary for Sick

Children and the Children's Convalescent Home at Yarmouth. Upon his retirement in 1888 he was appointed consulting physician to the Norfolk and Norwich Hospital.

Dr. Eade was noted throughout his county and indeed through the whole of East Anglia as a consultant. He was the author of a history of the Norwich Hospital and of monographs on influenza, diphtheria, furunculosis, diabetes insipidus and the local use of cold in abdominal inflammation. In 1874 when the British Medical Association met at Norwich he was president of the section of medicine. Dr. Eade also devoted himself extensively to local improvements and municipal politics and was thrice mayor of his city. For his public services he received the honor of knighthood in 1875. His long and active life was typical of that of the best of the older time British provincial practitioners.

Two of his colleagues writing of him in the issue of the *British Medical Journal* for August 21, speak as follows of his personality:

"The death of Sir Peter Eade has robbed the profession of one of the most eminent physicians in the Eastern Counties, and the city of Norwich has lost a very distinguished citizen. He has left us at the mature age of 90 years with all his faculties unimpaired, and able to take a keen interest in the affairs of life to within a few days of his decease.

"Having been intimately connected with him for more than fifty years professionally and otherwise, I could but admire the energy he displayed in all he undertook and his patient attention to the smallest details. As a physician he was well known as a consultant of the best type, and when gradually withdrawing from his professional duties at the age when most are glad to retire altogether, he kept up his reading and took the greatest interest in all modern modes of treatment and ever interested himself in the welfare of the Norfolk and Norwich Hospital, with which he had been so long and honorably connected, and also in all the philanthropic movements in the city and the parish in which he lived.

"Of small stature and frail physique he was ever quick and active in his movements, with which the activity of his mind seemed to correspond. Although holding strong opinions on many subjects, he was most tolerant of those who differed from him, and generous and honorable in all his actions, with an extremely kindly disposition. He lived his long life amongst us gaining not only the esteem and admiration of all, but the affectionate regard of those who best knew him and with whom he was almost in daily contact.

"Sir Peter was vigorous in argument, taking a very strong line on his personal conviction, but he never was known to bear the slightest malice to his opponents five minutes after the most heated controversy. He was a staunch friend to many but an enemy to none. Honorable to

a degree in all transactions, he would go out of his way to do a kind action for anybody requiring it. This I can testify to from personal experience. His purse was ever open to the poor of his parish, and they made free use of it. As a host he could not be excelled; his luncheons to the profession of the city and county, and his society dinners of twenty years ago were widely known and much appreciated. Sir Peter was genuinely loyal to all his colleagues, even at times under trying circumstances, and I cannot recall having ever heard his make an unkind remark about a member of the profession."

Miscellany.

MEDICAL CONDITIONS IN CHINA.

DURING the current year the JOURNAL has had occasion several times to present material regarding various aspects of medical conditions in China. In the issue of the JOURNAL for January 14 we commented editorially on Dr. Peabody's work with the Rockefeller Commission in making a medical survey of China, and on an article by Dr. William W. Cadbury of Canton in the *China Medical Journal* on medicine as practiced by the Chinese. In the issue of March 11 we presented a further editorial on the organization of the Hunan-Yale Medical School in China and on the new era which has recently developed in Chinese medical education. In the issue of March 25 we further quoted from a letter by Dr. Edward H. Hume descriptive of this school, and discussing particularly the work of the China medical commission of the Rockefeller Foundation. In the issue of the JOURNAL for June 17 appeared an article by Dr. Reed on the prevalence of rabies in China. Compared with the stagnation of preceding centuries it appears that there has been a definite awakening of medical activities in China within recent years. The *British Medical Journal*, in its issue for June 19, presents the following editorial comment on the report of the China Medical Commission, a summary of which was published in the *Johns Hopkins Bulletin* for June.

"The commission, which was composed of President Judson of the University of Chicago, Mr. Roger S. Greene (American Consul at Hankow), and Dr. Francis W. Peabody of Boston, with Mr. George B. McKibbin as secretary, visited seventeen medical schools and ninety-seven hospitals in China and Manila. The commissioners state that the death-rate in China is probably higher than in any other country. The most widespread and destructive diseases are tuberculosis, hookworm disease, and syphilis. Leprosy is also common, and smallpox is looked upon as an inevitable incident of human life. There is no legal restriction on medical practice. The native *materia medica* mainly consists of

herbs, but modern 'patent' medicines command a large sale. The Chinese doctors know nothing of surgery; this is due to their ignorance of anatomy. Dissections and post-mortem examinations were not officially authorized till November 22nd, 1913. There are some Chinese physicians trained in Western medicine, but they practise mostly in the treaty ports or are attached to mission hospitals. The medical schools are classed in four categories: (1) Government and private schools; (2) missionary schools; (3) schools for Chinese women, and (4) non-missionary schools under foreign control. The strictly Chinese schools suffer from great disadvantages caused by disturbances of the political atmosphere during the last four years and the financial difficulties of the Government. Not one of them is properly equipped or adequately staffed, and not one has access to a satisfactory hospital. China has three hospitals for women alone, besides two in which they may be educated with men. But these schools are small and poorly equipped, and there is a difficulty in getting students who have had a proper preliminary training. The non-missionary schools under foreign control are five in number: Japanese in Mukden, German in Tsingtao (of this we suppose we may now say *fuit Ilium*) and Shanghai, French in Canton, and English in Hong Kong. The commission found that a study of hospitals in China 'resolves itself almost completely into a consideration of the mission hospital. The more important non-missionary hospitals established by foreigners are for the care of foreigners, and have no very definite influence on China itself. The hospitals under Chinese control, whether Government or private, are, with few exceptions, ineffective, and they are chiefly of interest as demonstrating how small an impression high-grade Western medicine has as yet made on China.' Among the recommendations of the commission are the following: 'That the Foundation should undertake medical work in China, and as far as possible should co-operate with existing missionary institutions.' 'That it is not advisable at this time to establish an independent institution for research, but that research be encouraged in connexion with the medical schools aided by the Foundation.' 'That the first medical educational work be in Peking in connexion with the Union Medical College, that a new school be established in Shanghai, and provisions be made for co-operating with existing schools in and near Shanghai in order to unify medical effort in the lower Yangtse Valley; and that assistance be given the Canton Christian College, and that the Yale Mission at Changsha be aided in its medical plans.' 'That two model tuberculosis hospitals be established.' The other recommendations refer to the foundation of fellowships and scholarships for Chinese students, the training of nurses, and the establishment of central diagnostic laboratories in Peking and Shanghai. They sketch out a broad scheme of medical education which has for its

ultimate object a national system of public health administration. The commissioners insist that, if the scheme is to be successful, it is essential that a large number of natives of China should be thoroughly trained in the methods of Western medicine.'

Correspondence.

MASSACHUSETTS DAIRY INDUSTRY.

CITY HALL, WEST NEWTON, Sept. 15, 1915.

Mr. Editor: Although much has been said and written about the decay of the Massachusetts dairy industry, the question is one of such vital importance that I am tempted to make a few observations based upon a recent inspection of a number of Massachusetts dairies. During the trip some 250 dairies situated in the northwestern and central part of the state and in the metropolitan district, all sending milk to the cities and towns in the district, were inspected.

I will not take the time to analyze the scores further than to say they ranged from 23 to 99 and that the further they are situated from the point of delivery the lower the score. Incidentally this holds good for other parts of New England, the out-of-state dairies averaging lower than those in Massachusetts.

I was impressed by the fact that there is no inducement for the farmer to produce high grade milk, for the man whose dairy scores over 80 receives the same price as the one who scores below 30, and the man whose milk has a high fat content is paid no more than one whose product just passes the standard.

Under Chap. 744 of the Acts of 1914 no dairy can send milk into any city or town in Massachusetts until it has been approved by the Board of Health of that city or town. This means that a dairy selling milk to a large contractor, who mixes his milk, must be inspected by every city and town in which that contractor delivers milk and must conform to the requirements of each: too often these requirements are very diverse and what will pass in Newton may fail to pass in Brookline, and both may be unacceptable to Boston. In any event the farmer must do certain things in order to have his product pass, and so his cost of production is increased.

On the other hand he is at the mercy of the large contractor for his market and as the price paid is practically based upon milk of the lowest grade, he must accept what is offered or lose his market.

At the time the inspection was made the contractor's price was \$1.60 per 100 pounds but as there are certain deductions for cartage, etc., the net price averaged about \$1.50 per 100 pounds or .033¢ per quart. It is true that there are premiums offered but as there seemed to be no check governing the payment of these premiums the result is that anyone whose conscience is a trifle dull can obtain the premium.

One practical result of all this is that the dairy herds are made up chiefly of cows which will give a large amount of low grade milk and that many men who had Jerseys and Guernseys stated that they were going to dispose of them and replace them with other breeds giving milk with a smaller fat content.

Milk production is one of the few forms of business where a high grade product does not command a higher price than a poor one and it must be so from its very nature. The farmer must market his product at once for what he can get or lose it entirely and consequently must take what he is offered no matter if it is a loss. One man, in reply to a remark about the small number of cows in his herd, said, "Well, if had more cows I'd lose more money."

There must be a remedy for such a condition and I believe it to be a very simple one. The farm-

should receive a better price for a better product but to do this the public must be willing to pay more for its milk. Let the milk be graded so that the consumer by paying a cent more per quart can have better milk.

It has been proved again and again that premiums to the producer, varying from one-eighth to one-fourth cent per quart for certain standards almost immediately produce those standards. Low bacterial count and high fat content should bring a higher price to the producer. We ask the farmer to do these things now, thus increasing his cost of production, but we refuse to pay him for doing them and naturally he objects.

Contrary to the usual belief it is not necessary to have a modern concrete barn to produce clean milk; such an equipment is to be desired but it does not necessarily produce clean milk. Methods count more than equipment and a careful man can produce milk in an old barn, with lower bacterial count than a careless man can produce in a concrete barn.

Let us bend our energies to obtaining a better price for the farmer for clean milk so that there will be an inducement for him to produce it and the result will be an almost immediate increase in the quality of our dairy milk and a gradual revival of the dairy industry in Massachusetts. This will give us a fresher and better supply for domestic use, as it will shut out the low grade milk from distant points; but we must be willing to pay for it.

As long as we object to paying a fair price for a good product so long shall we have low grade milk, brought from a distance, crowding Massachusetts milk from our markets.

FRANCIS GEO. CURTIS, M.D.,
Chairman, Newton Board of Health.

AN HISTORIC MEDICAL LANDMARK.

CAMBRIDGE, MASS., Sept. 16, 1915.

Mr. Editor: I have recently learned that there are plans on foot to demolish the house at Wellesley formerly occupied by Dr. Morton, who first publicly demonstrated the anesthetic effects of ether. The tract of land upon which the Morton house stands has been purchased from the Hunnewell family by Mr. Roger W. Babson of Wellesley Hills who is about to erect an apartment house there. To make way for the new building the Morton house must be torn down. It seems to me that this valuable historic landmark should be preserved. May I suggest that in view of the fact that the epoch-making demonstration of ether anesthesia took place at the Massachusetts General Hospital it would be peculiarly fitting that the Massachusetts Medical Society should take immediate steps to preserve Dr. Morton's house at Wellesley and place a suitable tablet upon it to commemorate its illustrious occupant?

I have talked with Mr. Babson and find that he is willing to delay the destruction of the building pending any action which the Society may see fit to take.

Very truly yours,
W. STEWART WHITTEMORE, M.D.

AN EARLY MODERN REFERENCE TO THE WORK CURE.

PROUTS NECK, ME., Sept. 17, 1915.

Mr. Editor: In Tolstoi's "Anna Karenina," which was first published in 1875, occurs the following: It is supposed that Levin, the speaker, was a faithful pen picture of the great author himself, as was David Copperfield, of Dickens.

Levin had been passing a strenuous day with his *nuzhiks*, mowing, much to his brother's amusement. "The sight of his brother irresistibly filled him with

happiness. 'Nu! what an appetite you have!' he added, as he saw his tanned, sunburned, glowing face and neck, as he bent over his plate.

"Excellent! You can't imagine how this sort of thing drives all foolish thoughts out of one's head. I am going to enrich medicine with a new term, *arbetskur* (labor cure)."

"Nu, you don't seem to need it much, it seems to me."

"Yes it is a sovereign specific against nervous troubles."

Very truly yours,

WM. PEARCE COUES, M.D.

DIAPHRAGMATIC PARALYSIS IN POLIOMYELITIS.

NEW YORK, Sept. 17, 1915.

Mr. Editor: In your issue of Sept. 16, 1915, an especially interesting article on poliomyelitis by Dr. Sylvester, states, in its chief title, "A Hitherto Unrecorded Involvement of the Left Diaphragm."

Dr. Sylvester has overlooked the literature of poliomyelitis, else he would have found this paralysis recorded. In Jelliffe and White's just issued Diseases of the Nervous System, p. 312, the facts of complete and unilateral involvement of the diaphragm are specifically stated and the literature there cited also speaks of these facts. I think your readers would care to have this correction, inasmuch as Dr. Sylvester makes specific claim to priority in discovery. I am unable offhand to tell who first described it, but I suspect, either Heine or Medin.

Very respectfully,

SMITH ELY JELLIFFE, M.D.

BELGIAN PHYSICIAN'S RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING SEPT. 18, 1915.

Total receipts.....	\$7814.84
Total disbursements.....	\$7310.04
Balance	\$ 504.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

NOTICES.

EXAMINATION OF CANDIDATES FOR ASSISTANT SURGEON.

UNITED STATES PUBLIC HEALTH SERVICE.

Boards will be convened at the Bureau of Public Health Service, 3 B Street, S.E., Washington, D. C., and at the Marine Hospitals of Boston, Mass.; New York, N. Y.; Chicago, Ill.; St. Louis, Mo.; Louisville, Ky.; New Orleans, La., and San Francisco, Cal., on Monday, Nov. 1, 1915, at 10 o'clock A.M., for the purpose of examining candidates for admission to the grade of Assistant Surgeon in the Public Health Service.

Candidates must be between 23 and 32 years of age, graduates of a reputable medical college, and must furnish testimonials from two responsible persons as to their professional and moral character. Credit will be given in the examination for service in hospitals for the insane or experience in the detection of mental diseases. Candidates must have had one year's hospital experience or two years' professional work.

Candidates are required to certify that they believe

themselves free from any ailment which would disqualify them for service in any climate. Examinations are chiefly in writing, and begin with a short autobiography of the candidate. The remainder of the written exercise covers the various branches of medicine, surgery, and hygiene.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order. They will receive early appointments. After four years' service, assistant surgeons are entitled to examination for promotion to the grade of passed assistant surgeon. Passed assistant surgeons after twelve years' service are entitled to examination for promotion to the grade of surgeon.

Assistant surgeons receive \$2000, passed assistant surgeons \$2400, surgeons \$3000, senior surgeons \$3500, and assistant surgeon-generals \$4000 a year. When quarters are not provided, commutation at the rate of \$30, \$40, and \$50 a month, according to the grade, is allowed. All grades receive longevity pay, 10 per cent. in addition to the regular salary for every five years up to 40 per cent. after twenty years' service. The tenure of office is permanent. Officers traveling under orders are allowed actual expenses.

For invitation to appear before the board of examiners, address

SURGEON-GENERAL, PUBLIC HEALTH SERVICE,
Washington, D. C.

COURSE FOR DENTAL NURSES.

The Forsyth Dental Infirmary for Children, Boston, is about to establish a course for Dental Nurses. The Massachusetts Dental Registration Law of 1915 permits the employment of dental hygienists in public institutions.

Candidates for entrance to the course must be 18 years of age, of good moral character, and must present certificates of graduation from high schools recognized by the College Entrance Examination Board or the equivalent of a four-years' high school course.

The course of study will be one year of twelve months. The instruction will be given in the Forsyth Dental Infirmary for Children. The fee will be \$50.00.

An advanced course for Registered Medical Nurses will be offered. The course which will extend through a period of four months will deal with training in fundamental dental branches including practical technique. The fee will be \$25.00.

For information apply to

HAROLD DEW. CROSS, D.M.D.,
No. 140 The Fenway, Boston, Mass.

APPOINTMENTS.

BOSTON HEALTH DEPARTMENT.—The following have been appointed to positions in the child hygiene division of Boston: Dr. John S. Broenning, Dr. William J. McNally, Dr. Gustave Praino, Dr. Henry F. R. Watts, and Dr. Charles F. Willinsky.

CALIFORNIA STATE BOARD OF HEALTH.—Dr. Wilbur E. Sawyer, director of the California Hygienic Laboratory and lecturer on hygiene and preventive medicine at the University of California, has been appointed a member and secretary of the State Board of Health.

RECENT DEATHS.

DR. JOHN MERRICK BEMIS, a Fellow of The Massachusetts Medical Society, died at his home in Worcester, Mass., September 22, aged 55 years. He was a graduate of the University of Vermont College of Medicine and succeeded his father in the superintendency of the Herbert Hall Hospital in 1904.

DR. AMELIA BURROUGHS, who died at Boston on Sept. 25, was born in Omaha, Neb. She received the degree of M.D. in 1881 from the Homeopathic Hospital College, Cleveland. She was a member of the American Institute of Homeopathy and of the Massachusetts Homeopathic Medical Society.

DR. DEBORAH SMITH DRURY, who died on August 22, at Haverhill, Mass., was born at Andover in 1824. She received the degree of M.D. from the Women's Medical College of Pennsylvania, and during the Civil War practised her profession at Fall River, Mass. She subsequently removed to Boston and then to Haverhill. She is survived by one son.

DR. CHARLES EUGENE ESTABROOK, of Boston, who died recently of tuberculosis at Jacksonville, Fla., was a native of England. Coming to the United States in 1879, he graduated from the Harvard Dental School in 1883 and then studied medicine for three years. In 1887 he settled in the practice of dentistry in South Boston, but retired some years ago on account of ill health.

DR. DAVID HUNT, of Worcester, Mass., died of cerebral hemorrhage on September 15 in Detroit, Mich. He had been a practitioner in Boston and Worcester, making a specialty of ophthalmology and otology. He is survived by his widow and three daughters.

DR. JEAN PHILIPPE ALPHONSE GARNEAU, who died on September 21 at Fall River, Mass., was born at Quebec in 1868. He studied medicine at Laval University, and since 1895 has practised his profession in Fall River. He was a member of the Fall River Medical Society. He is survived by his widow and three sons.

DR. ANDREW V. JOVA, who died recently at Newburgh, N. Y., was born in Cuba in 1859. He received his medical education at the College of Physicians and Surgeons in New York and had practised his profession at that city and Newburgh.

DR. WILLIAM F. MÜHLENBERG, who died on August 25, at Reading, Pa., was born in Gettysburg in 1853. He was for many years one of the leading general practitioners of eastern Pennsylvania.

DR. CHARLES E. NICHOLS, who died recently in Boston, was a native of this city. He received the degree of M.D. from the University of Vermont in 1868.

DR. JUSTIN N. ROGERS, of Patten, Me., who died on September 16, at Farmington, Me., was born in Monson in that state, in 1880. He had practised at Patten for several years. He is survived by his widow.

DR. ERASMIUS D. SKINNER, who died at Minneola, Long Island, on September 20, was born at Greenport, L. I., in 1843, the son of a physician. He received the degree of M.D. in 1875 from the Berkshire Medical School. He is survived by his widow, one daughter, and two sons.

DR. HENRY STEARNS, of Concord, N. H., was killed in an automobile accident in Haverhill, N. H., on August 23. He was 45 years of age and had been a practitioner in Concord for nearly 15 years.

DR. JOHN E. SHEPPARD of Brooklyn, N. Y., who died of carcinoma on Sept. 13 at Putnam, Conn., was born in 1859. In his practice he had made a specialty in diseases of the eye, ear and nose. He was a member of the American Medical Association and of the Academy of Medicine. He is survived by his widow and by one child.

The Boston Medical and Surgical Journal

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Address.

OUR CRIMINAL PROBLEM FROM THE STANDPOINT OF CLASSIFICATION AND SEGREGATION.*

BY EDITH R. SPAULDING, M.D., FRAMINGHAM, MASS.

Resident Physician, Reformatory for Women,
Framingham, Mass.

It is our belief that the at present much agitated problem of prison reform has become more and more one for the medical profession to help in solving. Diagnosis of the individual delinquent is essential as a foundation for reform, and that diagnosis is being found to resolve itself largely into a medical and mental problem. It is true that environment and training are equally important factors, but without the fair evaluation of the physical and the mental sides, other factors cannot be estimated in proper proportion. As in medicine, a patient may recover without treatment or diagnosis, or the physician may administer the proper treatment in spite of a wrong diagnosis, so in criminalistics, "reform" may take place without the reformer's help, or, empirically, with the reformer's help but without the fundamental cause of his career being discovered. Nevertheless, as in medicine, the majority of cases of delinquency require treatment based on diagnosis, and that diagnosis calls for all the help which the combined forces of sociology, med-

icine, psychiatry and psychology can give. To this end, laboratories should be established in our courts and in our correctional institutions.

Statistics¹ of our Massachusetts penal institutions for the year ending Sept. 30, 1914, show the following figures:

Of 25,820 prisoners sentenced during that time, 14,817, or 57.4%, had served more than one sentence. The total number of previous commitments was 92,443, showing an average number of over six sentences for each of the recidivists, or an average of over three sentences for each of the total number. These figures are taken in most instances from the unverified statements of the individuals themselves and represent a very conservative estimate of their previous court records. Such results, however, from methods of "reform" which have not been based on diagnosis are not encouraging.

As the result of study of 500 women—inmates of the Massachusetts Reformatory for Women—the problem has seemed to resolve itself into a question of permanent segregation, partial segregation and parole, rather than one of universal reform. The question becomes one of *treatment of the individual* rather than *punishment* for the kind of crime committed.

By permanent segregation is meant commitment to a "defective delinquent" or feeble-minded institution. This is for those defective individuals whose court record and history of immorality places them in a different class from the unsophisticated feeble-minded who represent at present the majority in our state institutions for mental defectives. Under the present "defective delinquent" law² they may apply for

* To be read at the Annual Meeting of the American Prison Association, Oakland, California, October 9-14, 1915.

release once during the year, so that in case of improvement or of adequate means of caring for them in the home, their release would be possible. Such an institution, although separate from the schools already in existence, might be under the direction of the State Board of Insanity, as are the other institutions for the feeble-minded in this state. Of the 500 women studied there were 24.8% who were candidates for such segregation.

By partial segregation is meant a *truly* indeterminate sentence. The indeterminate sentence, in general use, would be more correctly termed an "indefinite" sentence. Strictly speaking, an indeterminate sentence should be without maximum or minimum. When a truly indeterminate sentence is adopted, an individual can be treated until his "convalescence" is sufficient to warrant release and can be returned to the "hospital" in case of a "relapse" or "reinfection."

The present indeterminate sentence, so-called, in this state, while it is a great improvement on the previous fixed sentence, is not long enough in many instances to give the patients sufficient time to recover from their "indispositions," especially when the indisposition is based on an adolescent condition of instability which may require years of careful supervision and treatment to cure. While a truly indeterminate sentence would be ideal for the majority of offenders, it seems indispensable in controlling that class of individuals who are socially inefficient but cannot be permanently segregated. Thirty-eight per cent. of the 500 cases studied seemed to need such control.

The system of indeterminate sentence and parole is at present in operation in over thirty states in this country. Such a system, to be truly effective, besides controlling the individual for a sufficient length of time should be based on a complete sociological study including the mental, the physical and the social aspect.

By parole is meant strict oversight outside the institution, with the understanding that the individual is to be returned if parole is violated. The parole class includes those who are eligible for release during the *present sentence*, which is a two-year indeterminate sentence for misdemeanors with a minimum of eight months, and a five-year indeterminate sentence for felonies, with a minimum of ten months. For these women the present system of legal procedure seems sufficient. This class includes 38.2% of the 500 cases.

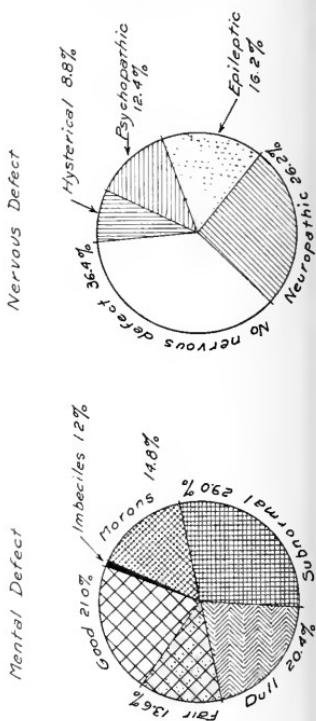
The following charts explain in detail the basis for and the results of such a classification:

Chart I represents the general mental classification of the 500 women, while Chart II shows the same classification graphically. It will be seen that 16% show marked feeble-mindedness, while 29% show slight mental defect. This makes a total of 45% showing mental defect in some degree. 20.4% show poor native ability or are dull from some physical defect; 13.6% have

CHART I.
SHOWING GENERAL CLASSIFICATION OF 500 WOMEN.

	No Nervous Defect.	Neurotic.	Psychopathic.	Epileptic.	Hysteric.	Total Number.	Total %.
Imbeciles	5		1			6	1.2
Morons	33	16	4	15	6	74	14.8
Subnormal ...	40	49	22	25	9	145	29.0
Dull	36	32	11	15	8	102	20.4
Fair	24	10	13	13	8	68	13.6
Good	44	24	11	13	13	105	21.0
Total No. ...	182	131	62	81	44	500	
Total %....	36.4	26.2	12.4	16.2	8.8		100%

CHART II
Showing graphically, percentages
of mental and nervous defect.



fair intellectual capacity, while 21% have distinctly good intellectual capacity. Thus 34.6% show good or fair mentality.

In connection with these percentages it is interesting to compare Dr. Goddard's³ tabulation of mental defectives in various reformatories, which range from 28 to 89%.

"From these studies," Goddard says, "we might conclude that at least 50% of all criminals are mentally defective."

On the other hand, Dr. Bronner⁴ has found in 500 unselected cases in the Juvenile Court in Chicago that less than 10% were feeble-minded, while those normal in ability exceeded 90%.

A second classification of the same 500 women shows the following nervous defects: 36.4% of

the 500 show no mental aberration or defect of the nervous system; 26.2% may be classed as neuropathic; 12.4% are psychopathic; 16.2% give a history of epilepsy; while 8.8% show manifestations of hysteria.

As neuropathic have been classed those women who show general nervous instability without manifestations of hysteria or epilepsy and with no history of marked "control defect" or psychopathic tendencies. Included in this class are cases of migraine and those who, having had chorea or meningitis or some brain injury earlier in life, still show nervous manifestations.

The term, "psychopathic individual," in our classification, in its *specific* sense refers to these borderline mental cases which show no underlying symptoms of epilepsy or hysteria, but present symptoms of depression, excitement, "control defect" or ideas of persecution, which do not form complexes definite enough to be classed as psychoses. As a *general* term it has been used to denote the "institution incorrigible" in contra-distinction to the dormitory type of the institutionally amenable, and in this sense includes all who evidence "control defect," whatever the underlying cause. About 4% of these cases have been confined in hospitals for the insane at some time during their lives.

The epileptics are proving more and more an important factor in our population. This is interesting in view of Lombroso's belief in the close relationship between the "instinctive criminal" and the epileptic. In 400 cases studied previously,⁵ there was a percentage of 12; in this 500—the last histories being much more complete than the first—the percentage had increased to 16.2. In the last 112 cases, in which special attention has been paid to epilepsy, both in history taking and in the outside investigation, and which perhaps included a larger percentage than usual, the following results have been obtained: 20% (23 cases) gave an unquestionable history of epilepsy; besides these, 9% (11 cases) gave histories of probable epilepsy.

In the families of the 112 cases, 45 other cases of probable epilepsy were found, 29 of which were unquestionable. In 10 of the 23 cases showing epilepsy in the individual herself, there was an average of two other cases in each family. In nine cases showing no definite signs of epilepsy in the individual there was epilepsy in another member of the family. These last cases giving a family history of it usually showed some characteristic symptoms, such as migraine or marked irregularity in the psychological tests and much instability in behavior.

According to this table, 32% of the epileptics show good or fair mentality, while only 40 cases, or 49%, show mental defect. This will prevent at least one-half from being candidates for permanent segregation as mental defectives. The majority of cases are having attacks of minor epilepsy only, at present, while many give only a past history of it, although the resulting instability is still markedly evident in their behavior.

This, however, would interfere with their segregation as epileptics even if the state should provide custodial care for epileptics with a criminal record. This it does not do at present. It will be seen how important a truly indeterminate sentence is in controlling such exceedingly unstable and dangerous individuals. A large percentage of the women who have to be disciplined because they do not conform to the rules of the institution comes from this class.

Cases of hysteria have been diagnosed as such only when definite symptoms were present, such as attacks of unconsciousness following fright, or areas of anesthesia and the absence of reflexes (palatal and conjunctival), etc. It is interesting to note in the comparison of mental with nervous defect that the nervous defect apparently outweighs the mental; that is, 63.6% show some nervous aberration, while only 45% show mental defect. This makes one realize how closely associated the subject is with the psychiatrist's field.

The above classification has been made with the assistance of the assistant physician, Dr. Elizabeth A. Sullivan, who comes into close contact with the women through both the physical and mental examinations. We are indebted to her for help, both in classifying and in charting the results.

The next three charts—III, IV and V—represent the detail of the three classes into which the 500 women have been divided:—

CHART III.
SHOWING DETAILED CLASSIFICATION OF CLASS I (GROUPS A AND B) WHICH NEEDS PERMANENT SEGREGATION.

	GROUP A.					Total Number.
	INSTITUTIONALLY AMENABLE.					
	95 Cases or 19.0% of 500 Cases.					
Imbecile	5	No Nervous Defect.	Neuropathic.	Psychopathic.	Epileptic.	Hysterical.
Moron	28	13	12	11	4	59
Subnormal	9	14	2	6		31

	GROUP B.					Total Number.
	INSTITUTIONALLY INCORRIGIBLE (PSYCHOPATHS).					
	24 Cases or 4.8% of 500 Cases.					
Imbecile	1					1
Moron		1	3	1		5
Subnormal		12	5	1		18
Total	42	27	19	25	6	119

Class I. This class (119 cases, or 23.8% of the total number) includes those who should be permanently segregated. Whether the cases are segregable or not has been estimated by judging the intellectual capacity, the social reactions and the resources for being protected in the outside world. As in insanity, a case has not been considered committable if it could be suitably cared for in the home. However, the fact that the woman has come to this institution usually

proves that the supervision was insufficient. Slight mental defect with a long court record has been considered as dangerous as marked mental defect with a short record, providing the outside resources for supervision have been the same.

All of the cases, however, which have been classed as "permanently segregable" show some intellectual defect. While it might be desirable to classify those cases as mentally defective which show social deviation but no apparent intellectual defect, in order to get custodial care for them under present conditions, still, for a differential study of causation, it would seem a great hindrance. If we are to judge by social record alone, 100% of the inmates of penal institutions are defective mentally. This, however, does not help us toward finding other factors equally important in "unclassified" cases which are at present being thrown on the general dump-heap of "defective delinquent."

Class I has been subdivided into two distinct groups, A and B.

(A) The first group includes those who are institutionally amenable and do not interfere seriously with the peace of any institution routine, in spite of various underlying factors, such as epilepsy, hysteria, etc. They can consequently be managed in large groups and can live in dormitories, both of which factors make their cost of maintenance a relatively small one.

The following case is illustrative of this group.

CASE 1. Class I, Group A. S. V. Age 26. Married; parents Italian; born in Connecticut. Offense.—Murder. No previous court record.

Family History. Father illiterate; earned \$7-8 a week in a bobbin shop (lowest possible kind of work). Mother living; can read and write; goes out by the day. Eight brothers and sisters; one brother at school for feeble-minded—an idiot.

No family court record.

Personal History. She attended country schools from 5 to 8 in Connecticut. Came to a mill town in Massachusetts where she attended school until 13; was never able to remember what she learned. She worked in mills from 13 to 18, then married. She had a bad reputation on the streets before and after her marriage. Her husband was alcoholic and gambled. He deserted her and four years later she obtained a divorce. She later remarried, having known her second husband a year and a half before marriage. He was a man of good reputation, became suspicious of her behavior and accused her of immorality. She took a revolver which was in the room and shot him.

Physical Examination. Well developed and nourished woman; has an endocarditis which is compensated; has gonorrhœa and syphilis. She has attacks of unconsciousness (major hysteria) whenever anything goes wrong. Imagines she sees husband at night when depressed—is very unstable. However, no evidence of a psychosis has been found at any time.

Mental Examination. According to Binet, is eight years old mentally. Has attended school for six years, but reads and writes with difficulty. Knows no arithmetic. According to all tests she is a feeble-minded individual.

Disposition of Case. Although she has hysteria and is frequently in difficulty in the institution, still she is amenable, as far as her mentality will allow, and should be classified in the "institutionally amenable" group to be permanently segregated. This should be enforced even in the face of a possible pardon.

(B) The second group includes the institutional incorrigibles, who upset any institution routine. (Many of this class are scattered through our insane hospitals at present, under the diagnosis of "defective delinquent" and show no evidence of a definite psychosis.) They may show the same underlying factors as the previous group,—epilepsy, hysteria, etc., but the manifestations in their behavior are far more active. They exhibit violent temper, break windows and assault attendants and fellow prisoners. This class should be managed in small groups with the equipment of a psychopathic hospital, and the treatment should be a combination of education, therapy and discipline. They should be managed in groups not exceeding ten in number, and be cared for in separate rooms instead of dormitories. This would, of course, increase the cost of their maintenance as compared with that of the previous group.

Havelock Ellis⁶ in "The Criminal," written as early as 1890, gives an interesting chapter on "Emotional Instability," in which he shows that the students of criminology have long been familiar with the "periodic explosions" and "wild fits of maniacal violence" among women confined in prisons. These, he thinks, might also be regarded as an "exaggeration or vicarious form of orgy." It is encouraging to know that the types which form our greatest problem at present have historic interest,—criminologically speaking.

Case 2 would be included in this class.

CASE 2. Class I, Group B. N. A. Age 22; single; colored; born in Massachusetts. Offense—Fornication. Previous offence, 1905,—Stubbornness; Sherman 1912—Stubbornness.

Family History. Maternal grandfather and maternal uncles were excessively alcoholic. Mother is epileptic; father, living and well. There were eight children, six of whom died in infancy, causes unknown.

Personal History. Patient went as far as the second reader in school; can count to 100; was always erratic and destructive; has always had violent attacks of temper without provocation. Was committed to an industrial school in 1905 at 12 because she was unmanageable and stubborn. Had had for eight years previously received care as a State minor ward. At the industrial school made little advance in school work. Had a tendency to destroy things. Would torment little kittens, and was known to kill a chicken by pulling its head off. Was sullen and would torment and even threaten to kill her playmates. Was untidy about her room and person. Would build "pests" in her bed of any obtainable filth. When 14, was committed to a school for the feeble-minded. There she showed the same tendencies, and although she did good manual work, was very erratic and quick tempered. Was

excitable in the presence of men, dancing around, yelling, laughing and clasping her hands when she saw them; was easily excited to bad temper if criticized. Was cruel to other children, and several times struck attendants. When 17, was committed to a hospital for insane, where her behavior continued to be the same. Attacked other patients from jealous motives. Was very irritable, frequently scolding and threatening other patients. Six months later was transferred to another hospital for the insane. As her behavior there during six months apparently improved and her father was anxious to have her at home, she was released, only to be sentenced to Sherborn the following year on a charge of stubbornness. The same attacks continued, during which she was violent and sometimes threw furniture about and attacked officers. At the expiration of a two-year sentence, she was returned to the community, only to be sent back three months later on a new charge of fornication. This girl passed through five institutions in 10 years and was cared for by charity during a period of eight years besides. At the time of her commitment to the industrial school she had very little knowledge of immorality and was assigned to the "Innocent Cottage." When she returned the last time to Sherborn she stated with much glee that since going out she had learned to drink, and would now be as wise as her associates. She had visited the well known cafés. She had become pregnant during this time.

Physical Examination. A fairly well nourished and developed woman. A lesion in lung suggests an old tuberculous process. She has gonorrhœa. Examination otherwise negative. Has had fainting attacks which were probably epileptic and occasionally has attacks of dizziness which are probably minor manifestations of epilepsy. The outbursts of temper undoubtedly represent psychic equivalents of the same disease.

Mental Examination. Attended school from 7 to 12, reaching only the second grade. Had further instructions at the industrial school and at the school for feeble-minded. Can do addition and subtraction, but is unable to do multiplication and division. Other tests for native ability show her to be a feeble-minded individual.

Disposition of Case. This woman, who undoubtedly requires custodial care, found no institution in the state where she could remain. She well represents the type which should be cared for permanently, although during her first sentence she would hardly have been a candidate for a defective delinquent institution. Some provision should be made for those cases with mental defect which are not insane, but which have abnormal mental traits besides their mental defect. Many of these individuals would become "delinquents" if not confined early enough, but earlier in their careers would be candidates for feeble-minded institutions on account of their mental defect even though they manifest abnormal mental tendencies.

The two groups should receive quite different treatment. That of Group A should correspond with the training already given in our model institutions for feeble-minded in Massachusetts. This should include educational and industrial work, with a fair amount of recreation, that their lives may be as useful and as happy as possible. Such an institution would be made, as far as possible, self-supporting. This would be a

great contrast to the present expenditure in the state, which is the result of irresponsible persons passing through our courts many times as they repeatedly return to penal institutions which, through their very nature, must have a high per capita cost. Their children, which they should never have been allowed to bring into the world, are being cared for, in the meantime, by the state.

CHART IV.

SHOWING DETAILED CLASSIFICATION OF CLASS II (GROUPS A, B AND C) WHICH NEEDS A TRULY INTERMEDIATE SENTENCE.

GROUP A.

INSTITUTIONALLY AMENABLE.

74 Cases or 14.8% of 500 Cases.

	No Nervous Defect.	Neurotic.	Psychopathic.	Epileptic.	Hysterical.	Total Number.
Moron	5	1			1	7
Subnormal	20	30	6	8	3	67

GROUP B.

INSTITUTIONALLY INCORRIGIBLE.

60 cases or 12.0% of 500 cases.

Moron				1		1
Subnormal		1	6	3	10	
Dull		5	7	4	16	
Fair		5	7	3	15	
Good		4	7	7	18	

GROUP C.

RECIDIVISTS.

56 cases or 11.2% of 500 cases.

Subnormal?	4	2		1	1	7
Dull	6	9	4	1	1	21
Fair	6	4	4		2	16
Good	3	6	2	1		12
Totals	44	52	31	38	25	190

Class II. One hundred and ninety cases, or 38% of the five hundred, include those who are quite as much a menace to themselves and to the community as the first class, but who do not seem to us to present sufficient excuse in their mental defect or their social record, to be considered candidates for permanent segregation. The only way in which this class can be fairly treated, both as a protection to themselves and to the community, is by having a true indeterminate sentence which should enable society to keep them under supervision for a number of years. Parole might be granted whenever it seemed advisable, but the women should be kept under close supervision and returned to the institution if necessary.

Class II has been divided into three groups,—A, B, and C.

Group A represents the defectives who belong to the institutionally amenable class. This group corresponds to Class I, Group A, but although these all show at least slight mental defect, there is not, as stated above, a long enough

record of immorality, or the outside supervision is too good, to warrant the case being presented to a judge for permanent commitment.

Case 3 belongs to this class.

CASE 3. Class II, Group A. W. F. Age 52. French-Canadian. Offence,—Drunkenness. Seven previous arrests for drunkenness—four sentences, three probations.

Family History. One child died of spinal meningitis, another developed epilepsy after an attack of spinal meningitis. No other cases of alcoholism in family.

Personal History. Born in Nova Scotia, where she attended school from seven to twelve. She worked in a mill from twelve to twenty-one, then came to Lawrence with a cousin, and continued to work in a mill there. When twenty-four she married a man whom she had known for over a year. After they had been married for eight years and had been happy during that time, three of her five children died suddenly. She thinks that it was the loss of these children that made her begin to drink. Although her husband drank moderately, he was never arrested. She drank in neighbors' houses but was not arrested until she was forty-three years old. In spite of all her family and her priest could do she has drunk to excess continually since that time.

Physical Examination. Well nourished and developed woman with no venereal disease. Her teeth, which were in an unspeakably bad condition, have been attended to.

Mental Examination. According to Binet, she is less than 11 years old mentally. Attended school in Nova Scotia from 7 to 12 years of age, reaching the fourth reader. She thinks she was never smart in school and says she cannot do much arithmetic. She made one mistake in addition and failed to do subtraction, multiplication and division. Does not know the higher tables. Is unable to do easy practical problems. Other tests show her to be sub-normal mentally. Some of this defect, however, may be due to deterioration from alcoholic excess.

Disposition of Case. This woman, while quiet usually, is very disorderly when intoxicated. She has two daughters, both splendid girls, who, with the priest's help, have done their best to keep her straight. They begged to have her sent back as she went on a protracted spree as soon as she was released on parole. Her instability may be partly the result of the menopause. She has a very good home to which to return. Both of these factors considered with her slight mental defect, would prevent her from being a candidate for permanent segregation. It is necessary, however, to keep her under supervision until her period of instability may have passed. She, therefore, represents the need of a truly indeterminate sentence for slightly defective individuals.

Group B represents again the "institutional incorrigibles," but this group includes only those who show no intellectual defect and are, therefore, not considered permanently segregable. While segregation for this class may be possible at some later date, we do not believe that the classification of such mental types is sufficiently definite at present to permit it. The term "defective delinquent," used as vaguely as it is used at present, is not a definite enough

term for classification. It might easily include the majority of the inmates of our institutions. How are we to decide which ones are commitable unless we use intellectual defect as a basis?

Case 4 is representative of Group B.

CASE 4. Class II, Group B. C. M. Age 37. Irish-American. Offence,—Drunkenness. Previous court record.—Drunkenness; 45 arrests; 16 probations; 29 sentences.

Family History. Negative so far as is known. Only one sister living, who is self-respecting and has a good reputation in the neighborhood.

Personal History. Born in Massachusetts, where she attended school until 13. Was always very nervous and hated to study. She finally left school because her younger sister went ahead of her. When 16, became intoxicated after taking something to drink for the first time from a young man with whom she had been associating. At the same time she acquired a syphilitic infection which became known to the family, causing much unhappiness. From that time on she has never been able to let alcohol alone for any length of time.

Physical Examination. A poorly developed and nourished woman. The Wassermann reaction for syphilis is negative, but there is a faint copper-colored rash on body. Bacteriological smear from cervix is negative for Neisser organisms. She has chronic gastric indigestion.

Mental Examination. According to Binet, she is 11 years old mentally. The results of tests for native ability are fairly good, although there is a great lack of concentration. During a previous sentence she was transferred to a hospital for the insane after a period of depression during which she attempted suicide. At other times she has disturbed periods when she will scream for several nights in succession, keeping everyone in the vicinity awake. During these periods of excitement she uses the vilest possible language, which she applies to everyone who comes near her. She throws everything around her room, although she has never been considered dangerous. She represents the manic-depressive type and even in her best periods is very unstable.

Disposition of Case.—She does not show sufficient mental defect to make her, in our estimation, a candidate for permanent segregation. She is, however, a dangerous woman in the community. She should be held on the indeterminate sentence, and if allowed out on parole, should be very strictly supervised. She belongs to the "institutionally incorrigible" group for partial segregation, i.e. a truly indeterminate sentence.

Group C includes those who have served three sentences or more and who show no mental defect or abnormality. Their record alone, however, has proved that they are incapable of caring for themselves in the community, and keeping out of trouble. Like all of the four preceding groups they are a great expense to the state, continually going in and out of institutions, seldom staying long enough for constructive work to be done with them and being, in the interim, a distressing element in the community. This group, in which mental defect or aberration cannot be considered a factor in the causation of delinquency, includes many who have been the product of wretched environment

or training. These two factors, however, have frequently been associated with *innate characteristics* which, although not criminalistic *per se*, in the environment in which the individuals have lived, have been partly responsible for the direction their careers have taken. On the one hand, one may find the non-resisting type, unable to resist customs about her, and craving sympathy and companionship as the normal individual does; on the other hand, one finds the aggressive type, with much more energy and physical temptation than it is possible for her to control or to express in her given environment. There are a few cases in this class in which no factors of heredity, environment or training can be found to account for the long record. However, we believe firmly that these cases show our own lack of understanding of mental and physical processes, and should be considered an "unclassified" group rather than be branded by the wholly inadequate and unfair title of "moral imbecile." As the science of criminalistics progresses, the "unclassified" group is rapidly becoming fewer in number—which is additional proof that such a classification was false.

Dr. Healey⁷ says with regard to this, after studying intensively over one thousand juvenile offenders, "We have been constantly on the lookout for a moral imbecile, that is, a person not subnormal and otherwise intact in mental powers, who shows himself devoid of moral feeling. We have not found one. Many cases have been brought to us as moral imbeciles, but they have always turned out somehow mentally defective or aberrational; or to be the victims of environmental conditions or mental conflict, and not at all devoid of moral feeling."

The following case (5) represents one of this type, who might first have been termed a "moral imbecile." Later, however, the underlying condition of minor epilepsy was discovered, which very likely was an important factor in causing her social instability.

CASE 5. Class II, Group C. H. P. Age 38. American; born in Massachusetts. Offence,—Forgery. Previous offences,—Forgery, 4 arrests; Larceny, 2 arrests; 4 previous sentences.

Family History. Parents were fairly well educated and respectable. They, with two brothers, have died. History otherwise negative.

Personal History. Attended school from 6 to 16, reaching the second year of High School. Took position as telephone operator at 17, and married three years later. Unknown to her husband, she forged several checks for small amounts without apparent incentive. After her husband's death, when she was 25, she continued this practice, working without known associates. The banks in all large cities have been warned against this woman, and her picture has been in wide circulation among the detective agencies.

Physical Examination. Fairly well nourished and developed. Has a positive Wassermann reaction but no specific history.

Mental Examination. According to Binet, she is

12 years old mentally (the highest age tested). Her intellectual capacity is apparently good, although she shows the irregularity frequently met with in the mental make-up of epileptics. She is decidedly neuropathic. Such a type might be considered "a moral imbecile" were it not for the later discovery of a history of epilepsy. This may well have been the underlying cause of her social instability.

Disposition of the Case. She belongs to the "recidivist" class and should be held on a truly indeterminate sentence, being kept under strict supervision if allowed on parole. The epilepsy in this instance is clinically a thing of the past and would not influence the immediate disposition of the case.

CHART V.

SHOWING DETAILED CLASSIFICATION OF CLASS III WHICH IS ELIGIBLE FOR PAROLE.

GROUP A.

HARMLESS DEFECTIVES.

13 cases or 2.6% of 500 cases.

	No. Neurotic Defects.	No. Neurotic Defects.	Psychopathic.	Epileptic.	Hysterical.	Total Number
Moron	7	2	2	1	1	2
Subnormal	7	2	2	1	1	11

GROUP B.

"REFORM" DOUBTFUL.

70 cases of 14.0% of 500 cases.

	Moron	Subnormal	Dull	Fair	Good	
Dull	17	10	1	5	3	33
Fair	3	4	3	3	2	15
Good	10	3	2	3	4	21

GROUP C.

"REFORMABLE."

108 cases or 21.6% of 500 cases.

	Moron	Subnormal	Dull	Fair	Good	
Dull	13	13	1	2	3	32
Fair	15	2	1	3	1	23
Good	31	15	3	2	3	54
Total	96	52	12	18	13	191

Chart V represents 191 women, or 38.2% of the 500 who are eligible for parole, not necessarily because of the hopefulness of their cases, but because they present insufficient excuse for a longer sentence than is the minimum for each offence. With the first or second offence and no abnormal symptoms, one can only give them another chance, although it may be certain from their attitude that they will soon become members of the recidivist class.

This class includes three groups, A, B, and C.

Group A. Included in this group are a few defective individuals who are practically harmless and can be cared for sufficiently well in the home to allow them to go out on parole. Most of these are beyond the child-bearing period. This group, however, includes only thirteen individuals.

The following case illustrates this group:—

CASE 6. Class III, Group A. D. M. Age 49.

Married. Born in France. Offence,—Abortion; no previous record.

Family History. Unobtainable.

Personal History. Came to this country with her husband eight years ago. He is a stone mason and earns good wages. For the last few years she has apparently been doing illegal operations in the neighborhood. Her husband and she both deny this, but a girl who had had a miscarriage stated that D. had given her an instrument for that purpose. Another girl also made the same statement and the evidence was sufficient to convict her. While in the institution she has been quiet and industrious, although she is very childish.

Physical Examination. Fairly well developed and nourished. No venereal disease. Is at menopause, having had no periods for eight months.

Mental Examination. Is unable to read and write, even in French, although she attended a French school for four years. Other tests show her to be feeble-minded. She is very nervous and harmlessly excitable,—possibly a racial characteristic.

Disposition of Case. This woman has a husband who can provide a good home and is amply able to care for his wife. She is beyond the child-bearing age and will probably be harmless in the community. The fright of having been arrested and her husband's good sense will probably prevent any repetition of the former offence,—therefore she is eligible for parole as a "harmless defective."

A division has been made of the remaining 178 in this class into the two following groups: (B), those who appear so anti-social in their attitude and so wedded to undesirable habits of life that their return to society as responsible individuals seems a remote possibility; and (C), those who will probably prove responsible members of society. Although this is a wholly arbitrary division, it represents the opinion of those who have studied them over a period of many months and often years. We should like, here, to express our indebtedness to Miss Edith Stedman, who, at the time this classification was made, was in charge of the sociological department and was of great assistance in classifying the women from the social point of view.

Group B (the "reform doubtful" group) includes 70 women (14.0%). Case 7 is included in this class.

CASE 7. Class III, Group B. W. M. Age 17 Single; American, born in Massachusetts. Offence,—Larceny. No previous record.

Family History. Father, mother, sister, aunt and paternal grandfather had court records. All of these, as well as maternal grandmother, were excessively alcoholic. One cousin is at the Lancaster Industrial School and one at Lyman School for Boys. The home was a rendezvous for drinking and immoral people.

Personal History. W.'s father was a wanderer and deserted his family. Parents were alcoholic and fought continually. After the father left, the mother went to live with other men. Although W. is only 17, she is a sophisticated woman of the world and states openly that she thinks well of prostitution as a profession. She comes from a wretched neighborhood on the outskirts of a small city, where immorality abounds. She is attractive and in the

midst of adolescence, when popularity has unusual charm. She has known nothing in her life but immorality and apparently revels in it.

Physical Examination. General condition poor. She has gonorrhea, but so far has apparently escaped syphilis. The Wassermann reaction is negative.

Mental Examination. She attended public school from 7 to 14, reaching the fifth grade. She lost promotion twice on account of sickness. The results of her education are fair although her general information is very poor. Other tests show her intellectual capacity to be fair.

Disposition of Case. With seven years of immorality behind her and such temptation as she is bound to have outside, a girl of her inclinations, even if wholly removed from her former environment, presents little hope of a change in her habits of life. She has already become canny and worldly, and her good intellectual capacity seems to accentuate this rather than to lessen it. Although a change of attitude is always a possibility, in such a case as this, it is extremely improbable. We should class her among the less hopeful ones who are eligible for parole.

Group C (the "reformable" ones) includes 108 women, or 21.6% of the total number. Case 8 is illustrative of this group.

CASE 8. Class III, Group C. O. M. Age 23. Married; Italian. Offence,—Adultery; no previous court record.

Family History. Father illiterate, worked in foundry in Italy. Mother dead, could read and write. One sister insane.

Personal History. Born in Italy; came to this country when 18, at the request of a cousin; was married 3 months later to an Italian who was immoral and abusive. After 9 months they were to return to Italy but he deserted her just before the steamer left. Because he did not send money to her in Italy, her father thought she could not be married, and when he found she was pregnant, turned her out of doors. She went to an aunt, where she met a man with whom she lived for two years. They returned to America after 7 months. He was good to her and supported her and two children which she had by him. (Her first pregnancy by her husband terminated in a miscarriage.) Finding herself in the same town with her husband some time later, she decided to return to him. (He in the meantime for three years had lived with another woman.) Her plan was to allow one of her children to remain with its father and to keep the baby herself. The husband insisted upon going to court, where they were all arrested. As he was the only one who could pay the fine of \$500.00, the other two served sentences for adultery. The sympathy of the court and probation officers was entirely with the woman rather than with the husband, who has a very bad reputation.

Physical Examination. A well developed and nourished woman with no venereal disease.

Mental Examination. Attended school in Italy from 3 to 13, reaching the fifth class. The results of her school advantages were rather poor. This may easily be due to the kind of school she attended. Although there may be some dulness, there is no evidence of mental defect. She is a good woman of the non-resisting type and without mental abnormality of any kind.

Disposition of Case. This case would seem to call for social adjustment. She certainly is eligible for parole, and it is a question whether or not she should ever have been sentenced to prison. She is consequently the reformable type of Class III.

Chart VI represents graphically the number of women included in each class. The average age of the three classes is as follows: Class I, 27.2 years; Class II, 31.1 years; Class III, 30.4 years.

It is interesting that as a class the most defective show the lowest average age. This would seem to be an argument against the classification according to age which has been suggested in various states,—their theory being that those women who are under thirty present the most fertile field for "reform."

Chart VII shows subdivisions of the three classes with the average of each division. It is interesting to note that the two classes showing psychopathic tendencies show a comparatively low age. Those in Group B of Class I average 26.4 years, as compared with 28.1 in the other group of the same class; while in Class II they average 23.7 years as compared with 29.1 and 40.4 years. The recidivists represent, as would be expected, the highest average, 40.4 years. The harmless defectives who are considered ineligible for parole, have an average of 38.9 years, while the other two corresponding classes average 28.1 and 29.1 years respectively. Both the unrefrangible and the refrangible groups in Class III average 26.4 and 26 years, respectively.

CHART VI

Showing classification of 500 women with reference to segregation.

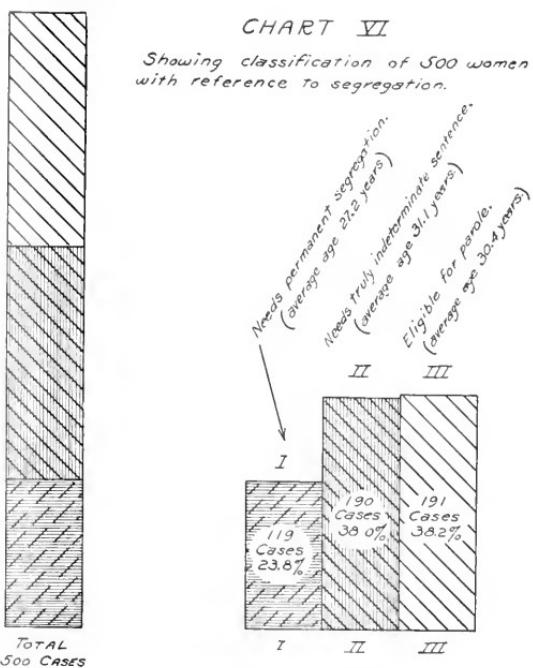


CHART VII

Showing subdivisions of each class.

Class I Needs permanent segregation.

- a Institutionally amenable defectives.
- b " " incorrigible - (psychopaths)

Class II Needs truly indeterminate sentence.

- a Slight mental defect - (Institutionally amenable)
- b Psychopaths without mental defect - (Institutionally incorrigible)
- c Recidivists - (without mental or nervous defect)

Class III Eligible for parole.

- a Harmless defectives.
- b "Reform" doubtful
- c Reformable.

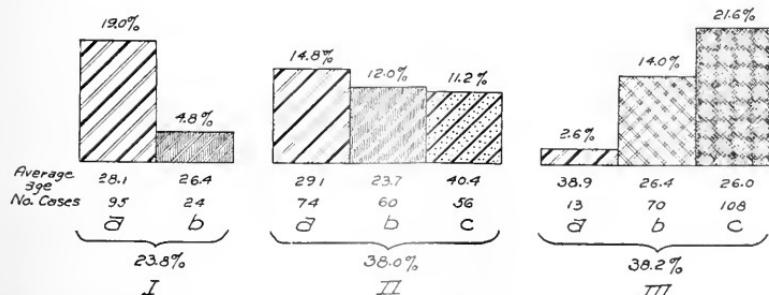


CHART VII

Showing proportion of mental defectives in each of the three classes.

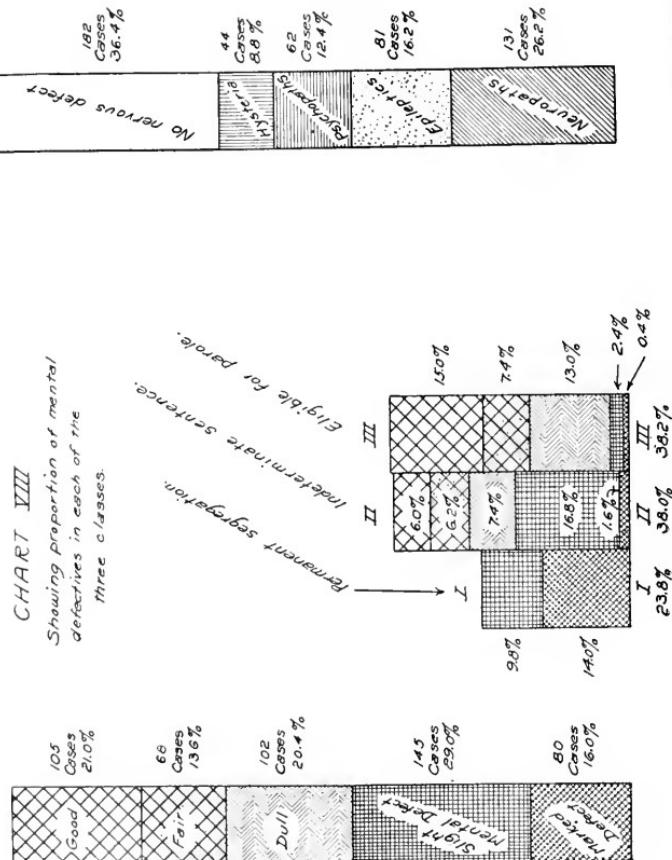


Chart VIII shows proportion of mental defect in the three classes.

CHART IX

Showing nervous defect in each of the three classes.

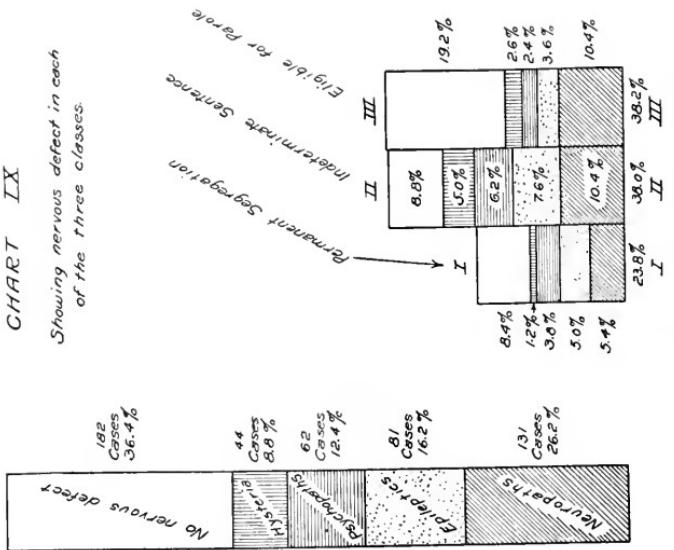


Chart IX shows nervous defect in the three classes. The highest percentage of nervous disease will be seen to be in the 'Indeterminate Sentence Class.'

CHART X
Showing percentage of venereal disease in each class.

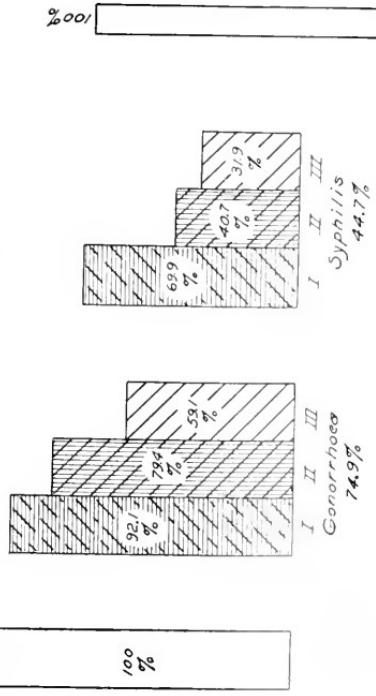
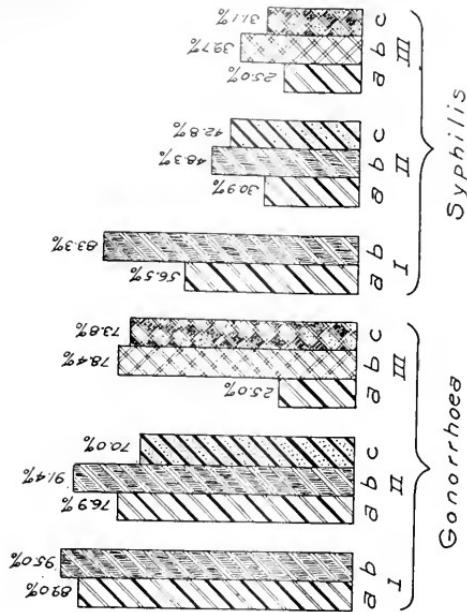


Chart X shows the percentage of venereal disease. This chart shows from a different point of view the relative danger to the community of the three classes. Gonorrhœa in the three classes is 92.1%, 79.4%, and 75.1% respectively, while syphilis is 69.9%, 40.7% and 31.9% respectively. The total percentage of gonorrhœa is 74.9 among the 500 women, while syphilis is 44.7%, with 9% more giving a doubtful Wassermann reaction.

CHART XI

Showing proportion of venereal disease in the subdivisions of the three classes.



Gonorrhœa

Syphilis

Chart XI shows in detail the prevalence of venereal disease in the sub-divisions of the three classes. It will be seen that the cases with psychopathic tendencies lead the others in the proportion of disease which they have acquired.

Through the Sociological Department, it has been possible to study the women with regard to the relative number and character of arrests in the various classes. We are much indebted to the members of this department for the assistance which they have given in compiling statistics.

The average number of sentences and arrests of the three classes is as follows:—

CLASS I.

	Sentences.	Arrests.
Group A.....	3.1	4.9
Group B.....	4.6	6.9
Class average.....	3.8	5.9

CLASS II.

	Sentences.	Arrests.
Group A.....	2.5	3.4
Group B.....	2.2	3.3
Group C.....	4.5	7.9
Class average.....	3.1	4.9

CLASS III.

	Sentences.	Arrests.
Group A.....	1.2	1.5
Group B.....	1.1	2.1
Group C.....	1.2	2.1
Class average.....	1.2	1.9

It will be seen that Class I has the highest class average, averaging 3.8 sentences and 5.9 arrests, Class II having 3.1 and 4.9, and Class III 1.2 and 1.9, respectively. This demonstrates the relative menace which the various classes are in the community.

The "institutional incorrigibles" with mental defect have a very high average as compared with

that of the amenable defectives. The "incorrigible" class without mental defect, however, does not show a relatively high average, being apparently less dangerous than the slightly feeble-minded of the same class.

The recidivist class naturally has a high average, but the fact that they have neither mental nor nervous defect makes them a greater problem, especially as there appears to be no excuse for their segregation.

Chart XII shows graphically the average number of sentences and arrests in the various groups of the three classes.

The average number of sentences and arrests according to the mental classification is as follows:—

	Sentences.	Arrests.
Imbecile	2.2	3.2
Moron	2.1	3.1
Subnormal	3.7	5.7
Dull	2.5	4.3
Fair	2.1	3.7
Good	2.1	3.7

The subnormal individual stands out here with the greatest prominence. Her intelligence seems great enough to increase her temptations, while at the same time her inhibitions are below the average. The dull individual has a higher average than the moron who, interestingly enough, is nearly on a par with those of fair and of good mentality.

CHART XII.

Showing average number of arrests and sentences in the subdivisions of the three classes

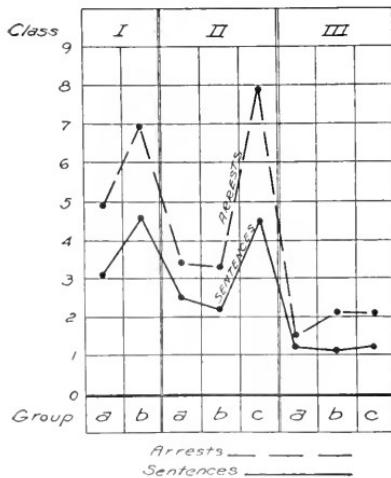


CHART XIII.

Showing average number of arrests and sentences in the three classes,—also, according to the classification of mental defect.

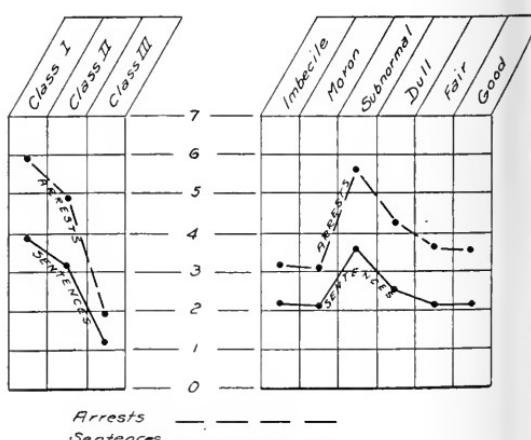


Chart XIII shows (1) the arrests and sentences in the three classes and (2) the same, classified according to mental defect.

The average number of sentences and arrests according to the classification of nervous defect is as follows:—

	Sentences.	Arrests.
No nervous defect.....	2.0	3.6
Neuropaths	3.9	6.2
Psychopaths	3.7	5.7
Epileptics	2.1	4.7
Hysterical	1.7	2.9

Chart XIV shows graphically such a classification.

Here it is noticeable that the highest average is in the neuropathic group, while the psychopaths follow closely—these two being considerably higher than any other group.

It may be of interest here to remember that the neuropathic group, besides cases of migraine, includes individuals who have had chorea or a meningitis or some brain injury earlier in life and still show nervous manifestations.

The offenses, for which these women have been arrested, have been studied in a general way to determine the various kinds prevalent in the three classes. For this purpose four general divisions have been made:—

1. Alcoholism alone (21% of the 500 cases).
 2. Offences against chastity, with or without alcoholism. This includes all offences which have a probable sex basis, such as stubborn child, vagrancy, common night walker, keeping disorderly house, lewdness, fornication, adultery, etc. (58% of the total number).

3. Offences against property, such as larceny, breaking and entering, forgery, etc. Many of these cases also have offences belonging to the first two classes. These are 15% of the total number.

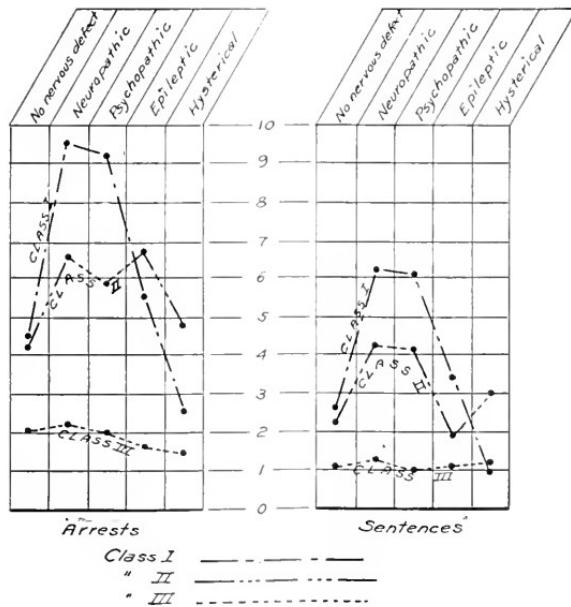
4. All remaining cases, including offences against the person, such as abandoning children, assault, manslaughter, etc. These comprise but 6% of the 500 cases.

The following figures show approximate percentages of these four groups in the three classes:—

Offences.	Class I.	Class II.	Class III.	Average.
1. Alcoholism alone.....	18	16	28	21
2. Offences against chastity...	67	58	49	58
3. Offences against property..	12	21	13	15
4. Offences against the person, etc.	3	5	10	6

CHART XIV

Showing average number of arrests and sentences according to the classification of nervous defect.



The first interesting point is the apparently higher percentage of alcoholism in the third class. This is due, however, to the high percentage (71%) among the thirteen "harmless defectives" in that class.

Offences against chastity hold a very important place in the three classes (49.67%) and were actually at their height among the "reform doubtful" group of Class III. It is interesting to find the mental defectives showing such a slight increase in sex offences.

Offences against property appear highest in Class II, but actually show their highest averages in the groups where there is no mental defect. This is even more marked in cases of "offences against the person."

ADAPTATION TO PRESENT CONDITIONS.

The foregoing charts show the ideal disposition of the 500 cases studied. If laboratories could be established as clearinghouses in connection with our courts, many of these cases would never need to carry the unjustly imposed stigma of "prison," and could be sent directly to other institutions, where they would receive appropriate treatment.

In spite of the fact that such a laboratory has been started in our own municipal court in Boston, where excellent work is being done by Dr. Anderson, there is no defective delinquent or feeble-minded institution to which suitable cases can be committed. Until such an institution is established, these individuals must be cared for in the various reformatories to which they are committed. The resulting classification in this institution would provide for the care of three groups entirely separate from the main group.

Chart XV shows such a classification.

Group I would include the mental defectives of the institutionally amenable type; first, 14.6% with marked mental defect, and also those of the 21.8% showing slight mental defect, who would be a menace to the main group if their social record were too bad or their tendencies too undesirable. The less harmful ones might be kept with the main group to fill the easier positions.

Group II represents the psychopathic group or the institutionally incorrigible. This second group, 16.8% in the present classification, includes all psychopathic individuals whose tendencies are apparent in their behavior and who may or may not have mental defect.

Group III (the recidivists) includes those serving three sentences or more (11.2%) and might also include those women serving their second sentence (6.0%), if they, studied individually, should be considered a demoralizing influence for the main group.

The treatment of the first two groups has already been described. For the recidivist group, other than individual treatment, the chief need would seem to be some self-supporting industry,

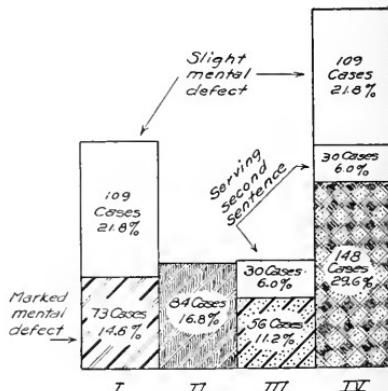
CHART XV

*Showing classification necessary in institution.
I Amenable defectives.*

II Psychopathic group - with or without mental defect.

III Recidivists - without mental defect, or nervous disease.

IV Main group.



which should bring returns to the individual herself. It might eventually be possible to form a self-supporting industry which could be continued under partial supervision for women on parole.

If these three groups could be removed, the main group (IV) would then be composed of the first or second offenders without mental or nervous defect, presenting the most fertile ground for education and treatment. This group would not be handicapped then, as it must necessarily be at present, in a congregate building which admits of no adequate separation of groups and therefore no classification. Industrial, domestic and academic training can then be given those capable of receiving it and the discipline of the institution will not have to be suited to the window-breaking, assaulting types.

CONCLUSIONS.

If the criminal problem is one of treatment of the individual for his deficiencies rather than of punishment for the crime committed, the following fundamental provisions for the administration of such treatment are necessary:

1. Adequate provision by the state for the permanent custodial care of all committable cases of mental defect whether or not they have a court record.

2. The establishment of laboratories in our courts and correctional institutions for the study and diagnosis of all offenders.

3. The equipment of all our institutions with facilities for classification and treatment of the various types which will remain even after the removal of the most defective. Such classification will necessitate separate buildings, at least one of which should be equipped for hydrotherapy.

4. The adoption of an indeterminate sentence, which shall enable us to treat patients until they are able to return with safety to the community.

The physician has it in his power to do much towards educating the public to the need of fundamental measures of reform and towards counteracting the tendency toward superficiality of some enthusiastic believers in *universal* reform. His knowledge of mental and physical defect enables him to see more than the cross-section of the subject, which is represented by the population at present confined in our penal institutions, and to appreciate the social and economic waste which is the result of our past neglect of generations of inefficients in the community.

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Original Articles.

BLOOD PRESSURE DETERMINATIONS, URINARY FINDINGS AND DIFFERENTIAL BLOOD COUNTS IN A GROUP OF 662 YOUNG MALE ADULTS.

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THERE are apparently few absolute standards for the normal in clinical medicine. Our tentative standards are constantly undergoing readjustments. Furthermore, it seems true that physicians as a class are better acquainted with disease and its variations than with health and its variations. The physical examination of any large unselected group offers an opportunity of testing the standards now recognized for that group. In the physical examination of the entire freshman class at Harvard University, in addition to the usual visceral examination, observations were made on the blood pressure, systolic and diastolic, in both the recumbent and

standing positions; a complete urine analysis was made in each case; and a blood smear was taken, stained with Wright's stain and differential counts of the white corpuscles were made. This paper is based on the findings of a single examination.

There were 662 freshmen, the average age 18, average height 5 feet, 8 inches, average weight without clothes, 143 pounds.

Blood Pressure. Blood pressure determinations were made both in the standing and in the recumbent positions. The instrument used was that of Tyco. The method was the auscultatory method. The diastolic reading was made at the beginning of the so-called fourth phase. These determinations are, of course, open to serious criticism on the ground of accuracy, but on the whole they correspond to the blood pressure determinations as taken as routine in most private and hospital practice. The average systolic pressure was approximately 120 mm. of mercury; the average diastolic pressure 80 mm. Arbitrarily, 140 mm. was fixed upon as the upper normal limit for systolic pressure and 100 mm. for diastolic pressure.

Increased Systolic Pressure. Eighty-five, or 12.8%, of the 662 presented systolic blood pressure readings over 140. The highest reading was 180. There were seven systolic blood pressure observations over 160, but there was only one case in which the systolic blood pressure was recorded over 150 both standing and recumbent. In 33 of the 85 cases the standing systolic blood pressure was over 140; the recumbent blood pressure was 140 or under. In 21 the recumbent blood pressure was over 140, while the standing blood pressure was 140 or under. In other words, considerable variation was found during the period of a single examination. While 85 showed a reading that might be interpreted as abnormal, in only 31 was the reading over 140 in both the standing and recumbent positions. It is of some interest that, while in general our readings followed the rule that the systolic blood pressure standing is somewhat higher than in the recumbent position, yet the reading was frequently the same in both positions, and occasionally, as in 21 of the 85 cases, the blood pressure was higher in the recumbent position than in the standing position. There were no systolic readings below 100 in both positions. An occasional reading in one position of 90 to 100 was found. The lowest reading was 80, in a youth standing who felt faint. A few minutes earlier and later the reading was 120.

It has been impossible to repeat the examination of this entire group. All of the cases of systolic blood pressures over 160, all the cases with diastolic pressures over 100, and all but two with an association of albuminuria and hypertension have been re-examined. Eighteen of the 31 cases with both systolic pressures over 140 have been re-examined, and of these 18, 13 presented a normal reading at the time of the

second or third examination. The five cases giving persistently abnormal readings were a case of probable nephritis, a case of obesity, one case of albuminuria and two cases with valvular lesions of the heart. It seems apparent, therefore, that too much stress should not be placed on a single systolic determination of over 140, for in our series 54 out of 85 with an abnormal systolic reading over 140 gave at the same time in some other position normal readings. Subsequently, 8 more of the 31 cases gave readings within the normal limits. Abnormal blood pressure readings on a single examination are not necessarily associated with any demonstrable visceral lesion, but seem to be associated rather with the nervous disturbance attendant on examination.

Increased Diastolic Pressure. The diastolic pressures were found to be much more uniform. There was comparatively little variation between the readings in the recumbent and standing positions. The average was 80. Only five cases had a diastolic blood pressure over 100. All these five cases presented systolic blood pressures over 140, but only one of them presented a systolic pressure over 160. Of the five cases who presented diastolic blood pressures over 100, no other abnormality was found in three cases. These three cases gave normal readings on re-examination. In one case with a reading of standing systolic 150, diastolic 110, recumbent systolic 160, diastolic 115, there was a diagnosis of marked obesity. Repeated observations confirmed these readings. The fifth case, with a standing systolic pressure of 164, diastolic 132, recumbent systolic 158, diastolic 122, showed a slight albuminuria with a negative sediment, without apparent cardiac enlargement and with a negative past history. These findings have been confirmed on several examinations and a probable diagnosis of chronic nephritis has been made.

This group would seem to illustrate the value of the determination of the diastolic blood pressure since the diastolic blood pressure is much less subject to variation than the systolic blood pressure. Of the entire group there is only one case that shows the completed picture usually associated with chronic nephritis, and that one case presented the highest diastolic pressure.

Abnormal Blood Pressure and Urinary Findings. Of this group of 85 cases, 9 (or 10.5%) showed albuminuria. The percentage of albuminuria in the total 662 freshmen was 5.1%. The incidence of albuminuria among the cases with an apparently abnormal blood pressure is approximately twice as great as in the total group. In only one case with albuminuria was the systolic pressure in either the standing or recumbent position over 160. This is the case of probable nephritis. In two cases there were no further observations. One case had a persistently high systolic pressure and albuminuria, but he also had a chronic endocarditis, which

might well have explained the high blood pressure. Of the remaining five cases, the albuminuria cleared up in three and the increased blood pressure in five cases. In only one was there a persistently slightly increased blood pressure and albuminuria. Two of the cases with an abnormal blood pressure showed a temporary glycosuria. In both these cases on re-examination the sugar disappeared from the urine and the blood pressure readings were within the normal limit.

Abnormal Blood Pressure and Other Abnormal Findings. In seven of the 86 cases, a definite valvular lesion of the heart was found. One of these cases also presented albuminuria. In these cases it seemed reasonable to associate the increased blood pressure with the valvular lesion. In all the seven cases the heart was apparently compensated. Four of the seven had the classical signs of aortic regurgitation. In two more cases showing an abnormal blood pressure, apparent cardiac enlargement was found without adequate cause, either in the history, urinary findings or other examination.

In one case a slight goitre was present, which may or may not have been the cause of the apparently abnormal blood pressure. Another case of obesity presented a persistently high blood pressure. There are, then, 22 cases with an abnormal blood pressure reading which are associated with other lesions, leaving 52 cases in which no other lesions were found.

Albuminuria. Thirty-four of the 662 freshmen (or 5.1%) showed albumen in their urine. These 34 have all been re-examined and on the second examination ten of them were free from albumen, and the condition seemed transitory. In three other cases the albumen was definitely orthostatic inasmuch as repeated examinations showed that albumen was constantly absent in the early morning and fairly constantly present during the day. The amount of albumen varied. A positive test depended on a definite ring with nitric acid. Careful sediments were examined and casts were found in only four of the 34 cases. Three of those four subsequently became free from albumen. Eight of the 34 (or 20%) showed a systolic pressure over 140. Eighty-five of the total number examined (or 12.8%) showed a high systolic blood pressure. There was only one diastolic pressure over 100. This was the case of presumable nephritis. Three of the 8 cases with a slightly increased blood pressure, which was in only one case over 160, showed no albumen after the first examination. In none of these cases was there any other evidence of cardiac enlargement.

During the same time 275 other members of the University were examined in a similar way. Of these, 10¹ (or 3.6%) showed albumen, and of these 10 only one showed a systolic blood pressure of over 140 on a single observation. There were no diastolic pressures over 100. The urinary sediments from these cases in no instance showed casts and in no case was there

any evidence of cardiac hypertrophy. The majority of these cases were not carefully followed, but in two instances the albumen was temporary, in one it was apparently orthostatic, and in one it was always present, and had been known to be present for at least 10 years.

Glycosuria. Five cases showed sugar in the urine; in two cases the sugar immediately cleared up and has not reappeared. In one case there is occasionally a slight reduction. Two cases, however, showed persistent glycosuria even after moderate restriction of the diet. One case required very strict dieting before he became sugar-free; the other case became sugar-free on a moderate restriction of carbohydrate foods.

Glycosuria is much less common under the conditions of our examination than albuminuria. In two cases it seemed transitory and in one probably so. In two other cases the glycosuria apparently indicated some more or less permanent defect in metabolism.

Blood Examination. Blood smears were made in every case, and differential counts of the white corpuscles were made in 564. The main interest was to determine the presence of leucocytosis, lymphocytosis or eosinophilia. Recent reports by Cabot and others of lymphocytosis made us suspect that lymphocytosis would not be uncommon in the usual conditions of health. The usual, although somewhat unsatisfactory, classification of polynuclear leucocytes, lymphocytes, transitional cells and eosinophiles was followed. Only five cases presented a poly-nuclear leucocytosis of over 75%. Only four cases showed an eosinophilia of over 5%; the reasons for these were not apparent. Seventy-three cases showed a lymphocytosis of over 50%, but in no instance was the lymphocytosis over 60%. In 158 cases the lymphocytes were between 40 and 50% of the white cells. In other words, 231 of the 564 cases showed a lymphocyte count between 40 and 50%. It was a matter of surprise that no greater variations were found. The red cells were essentially normal in every case.

The result of our examination of the blood smears showed that there is little variation from the usually accepted standard in the differential count in the healthy young male adult. Our findings rather corroborated the view now generally held that the lymphocytes frequently approach 50% of the white corpuscles in the normal blood, and not infrequently, in 73 cases out of 564 (or nearly 13%), are over 50% of the white corpuscles; but in none of our cases did they exceed 60%.

General Conclusions. Among young male adults in the usual condition of health a single determination of the systolic blood pressure frequently gives readings that are regarded as abnormal according to the usual standards. This deviation from the usual standard may be considerable and may be present on several occasions. In the absence of other abnormal find-

ings moderate increase of systolic blood pressure seems to be of no significance. The diastolic blood pressure is much less subject to variation and is of considerable value in offering a control on an abnormal systolic pressure.

Albuminuria was present in 5% of this group, and in only one case was there additional evidence of a true nephritis. Albuminuria in young male adults may be permanent, orthostatic or transitory, and is apparently of no serious significance.

Glycosuria is unusual and in one case particularly, and apparently in another, was more than transitory and seemed associated with disturbed metabolism.

The differential counts of the leucocytes of the blood in this group confirm our accepted standard for the normal.

NOTES ON GASTRIC AND DUODENAL ULCERS.*

BY CHRISTOPHER GRAHAM, M.D., ROCHESTER, MINN.

THE questions often arise: Are there any symptoms or a group of symptoms whereby we may reasonably locate peptic ulcer? Do clinical histories, as ordinarily taken, give satisfactory evidence as to whether the ulcer be high or low? When the full evidence is before us we often feel that the picture is reassuring, and when reviewing histories taken by other clinicians, we find symptoms repeated so frequently that we have hopeful moments. However, after reviewing the histories of our own cases from 1906 to 1915, we cannot find any pathognomonic symptom, or combination of symptoms that clearly gives the coveted assurance, and we are forced to conclude that he who meets defeat again and again, in attempts at ulcer location will in time, even when the symptoms have met most of his requirements, come to feel less sure in his diagnosis than is comforting.

The clinical diagnoses in our series of approximately 1300 cases of operatively demonstrated duodenal ulcer during the years mentioned above have run about as follows: There were 702 (54%) cases primarily called duodenal ulcer, while 323 (24.8%) were classified as gastric ulcer. In another group of 107 (8.2%, repeated) gastric or duodenal ulcer was given as the secondary diagnosis, or was considered equally with the lesion in question as the cause of the complaint. One hundred seventy-five cases (13.5%) were primarily considered gall-stones (5% gall-stones alone), or gall-stones entered largely into the diagnosis (8.5%).

In 64 cases (5%) appendicitis (1% appendicitis alone) entered largely into the diagnosis, while cancer was considered in 1 1/2%. About 1% were quite unclassified.

Among the 450 cases of gastric ulcer oper-

* Read before the Marshfield Clinical Meeting, Marshfield, Wis., June 30, 1915.

atively demonstrated, 248 (55%) were classified as gastric, 119 (26½%) as duodenal, and 31 (6½%, 19 gastric and 12 duodenal) in which the gastric diagnosis was placed second. The gall bladder was primarily considered diseased in 40 (8.8%) cases and in 5% this was the only diagnosis made. Cancer was considered present in 4.8% of the cases, appendicitis in 1.7%, those not classified about 2½%. From these figures it will readily be seen why one hesitates in many cases to attempt to make a possible diagnosis as to the location of the ulcer. It is not a difficult problem to diagnose the presence of a peptic lesion, but it is quite difficult to determine whether the lesion is gastric or duodenal.

We have fallen into the way of roughly dividing gastric complaints into those of regular and of irregular types, and also of considering a gall bladder type. However, one must keep in mind extrinsic causes, such as gall-stones, appendicitis, and tuberculosis. These may give quite the regular gastric syndrome, and gastric symptoms be the chief complaint for which relief is sought, or they may very often give an irregular history, which confuses and leads to provisional diagnoses.

The following clinical syndromes are worthy of consideration:-

1. *The regular type of duodenal ulcer* is looked upon as that in which the pain or distress comes within two to five hours after meals, accompanied by gas, sour stomach and vomiting, one or all appearing about the same hour, and continuing until the next meal, or until food, an alkali, vomiting or irrigation brings comfort by relieving the acid state. These symptoms are repeated with certain uniformity each day for days, weeks or months, and then there is an intermission of perfect ease, or at least a marked resumption ensues. These periods of attack and intermission may come and go for years, the only change, perhaps, being an increase in severity until the time comes when complications have altered the gastric movements and functions.

2. *The regular gastric type*, as we prefer to consider it, has the same periodicity and the same group of symptoms, though not so clearly cut as in the duodenal lesion, but, as we have shown, in at least one-fourth of the cases the difference is quite indistinguishable. Pain or distress comes sooner after meals, does not continue so clearly to the next meal, may cease for a time to begin again before the following meal, and is often eased by food, though not so often nor so clearly as the pain of duodenal ulcer. Fear of food-pain is more often noted. Food in small amounts gives ease, while in larger amounts it gives pain. Hunger-pain is not so clear cut, and not so frequent, because the pain may pass before mealtime arrives. Careful diet seems to give more relief than in duodenal ulcer, unless complications are present. Sour food is not so troublesome in the high as in the low ulcer, and the position of the body as well as

physical activity plays a more important rôle in the gastric than in the duodenal cases. A definite intrinsic gastric complaint runs throughout the history, though the features seem less clear cut than in duodenal ulcer, and one feels a greater lack of certainty in the diagnosis. However, the fact remains that the final diagnostic figures in this series hold clearly as well in the gastric as in the duodenal types.

3. *The irregular peptic ulcer type* of history has lost the distinctive time of onset of symptoms and their control. We find such histories in cases of obstruction, perforation with adhesions, hour-glass stomach, saddle ulcer, lesions of large areas, or any condition where function and movement are limited.

Intermissions or remissions are fairly constant, but not so well defined as in uncomplicated ulcer found low, or even usually those well above the pylorus. This type of history does not give that daily distinctive time of onset and control of symptoms which we expect to see during the period of an attack. They do not run that clear cut course, yet when considered day by day, and week by week, we discover in the so-called irregularity a certain definite course which clearly points to an intrinsic lesion of the stomach. Day by day the average is quite the same, though usually, the hunger-pains, food ease, and hemorrhages are less definite. However, pain, vomiting, distress, gas and sour eructation are the constant results of food intake, from which more or less relief is experienced by careful diet, alkali, irrigation or vomiting. These factors are always first in the patient's complaint, and are the ones most considered in the diagnosis. This irregular complicated type of history may be manifest from the first onset of symptoms, but often the early history, carefully developed, brings out the clear cut typical history which supplies the final diagnostic point.

Histories in cases of high ulcer tend earlier to this irregular type, those of pyloric and duodenal ulcer less often, and then usually when obstruction or other complications have intervened. Thus, in the so-called irregular types, we incline to the diagnosis of gastric rather than of duodenal ulcer, or we look for extrinsic causes. When gastric symptoms predominate we must always bear in mind these extra-gastric causes, whether they be general diseases or local conditions. At times the course of these extra-gastric lesions may be so typical of ulcer, even to the extent of hemorrhage, that ulcer is diagnosed, unconditionally. Fortunately, however, the day-by-day symptoms in these cases vary so much,—today this effect, tomorrow quite different, again a day entirely free, and through it all no change in diet or surroundings,—that one catches the hint and guards the diagnosis. With patients complaining of gastric distress it is necessary to be constantly on guard, always ready to differentiate the extrinsic causes that simulate the regular ulcer type, as well as to differentiate

those that seem to be of the irregular ulcer type, but are also as surely due to extrinsic causes. It is among the symptoms due to an extra-gastric condition, that many difficult diagnostic battles are fought and lost, or but partly won, and it is these same difficult battles that have taught us to hesitate before making a too spirited diagnostic charge at the real enemy.

When reading duodenal histories one is apt to be impressed with the array of so-called regular histories, and to feel that ulcers higher up are not nearly so clear cut. Yet in going over the histories from 1906 to 1915, we discovered that 72% of duodenal cases gave fairly regular symptoms and that 71% of gastric cases gave the expected syndrome, or were so clearly gastric that little hesitancy was felt in making a diagnosis.

Pain is the one constant diagnostic factor in all peptic ulcers. Less than 1% of patients are recorded free from pain. The character of the pain has few if any distinguishing points, and is described as: Distress, aching, burning, gnawing, pressing, boring, sharp cramps, colic, etc. It runs a similar course in all ulcers, though it resembles the pain in gall-stone cases more frequently in the duodenal group. The time of pain has some distinctive diagnostic significance. In the duodenal ulcers the pain came $\frac{1}{2}$ to 2 hours after food in 23% of cases, and 2 to 5 hours in 77% of the cases. In gastric ulcers the time limits of $\frac{1}{2}$ to 2 hours included 50% and 2 to 5 hours an equal number. In 20% of the duodenal and in 19% of the gastric ulcers the time of pain was not recorded. Eight per cent. of the patients with duodenal ulcer and 19% with gastric ulcer had pain within $\frac{1}{2}$ to 1 hour after eating.

Pain at night appeared to be more decidedly frequent in duodenal ulcer, while ease from posture (lying down) seemed decidedly more frequent in gastric ulcer. However, the final analysis gives 14% of the patients with duodenal ulcer and 10% of those with gastric ulcer having pain at night. Postural ease was noted in 8% of the duodenal and in 9% of the gastric cases. These figures correspond much more closely than one would suppose from impressions gained in history writing.

Continuous pain from the beginning of symptoms was mentioned in 4% of the duodenal and 9.5% of the gastric cases. Tenderness to touch was recorded in 41% of the duodenal and 40% of the gastric histories.

The location and radiation of pain was noted as follows: Of the duodenal ulcers 49% were well confined to the epigastrium, 52% of the gastric were similarly located. Those with radiation to the back ran 24% duodenal and 22% gastric. In the diagnosis gall-stones were considered certain or were given first place in 13% of the duodenal and in 9% of the gastric cases.

Radiation to the left epigastric area occurred twice as often in gastric (10%) as in duodenal cases (4%). The percentage of radiation to the

abdomen and fossae was quite similar (9.5% duodenal, 9% gastric). Radiation to right epigastrum was present in 6.6% of the gastric and in 13.7% of the duodenal cases. Therefore, tenderness to touch, radiation of pain, and the patient's ability to locate his subjective pain gave little basis upon which to arrive at a differentiation. The pain, as described by the patient, had much the same character in both the gastric and duodenal type, so much so that it gave but little clue to the location of the lesion. However, when ulcers were high there was some diagnostic foundation in the patient's ability to locate his subjective pain. In some instances the pain was quite to the left side or even well under the left arch.

Vomiting was recorded as occurring in 79% of the duodenal and in 82% of the gastric ulcers, while gas was present in 77% of the duodenal and in 94% of the gastric. With the vomiting and gas, sour gastric contents was quite constant in both types, though more troublesome in the gastric.

Control of pain, whether the lesion was in the duodenum, or above, ran quite the same and was as follows:

Food or drink, or both, eased pain in 75% of duodenal, and in 66% of gastric ulcers. Vomiting and belching of gas had less distinguishing percentages, both giving marked ease. Ease from belching of gas in each was less permanent than vomiting. However, gas formation and belching were more persistent in patients with ulcers of the pylorus.

The effect of alkalis was practically the same wherever the location, *i.e.* ulcers above the pylorus were about as frequently (33%) eased as those in the duodenal area (38%). Irrigation gave about the same results no matter where the lesion (11% in duodenal and 9% in gastric), the advantage lying slightly in favor of the duodenal location.

Gastric hemorrhages may be of some diagnostic aid. In this series, history of hemorrhages by the mouth was recorded in 18.5% of duodenal and in 25% of gastric cases. Blood by the bowels was similarly recorded in 18% of duodenal and in 24% of gastric cases.

Perforation ran about equal in both classes (duodenal 28.7%, gastric 26%) and of those that perforated, the pancreas received the perforation in 17% of the duodenal and in 25% of the gastric cases. Pain to the back, which more or less simulated gall-stone radiation, ran about equal (24% duodenal, 22% gastric) in the two conditions, all cases considered. This clearly accounts for the wide range of suggestion of gall-stones in our cases with gastric lesions.

The effect of diet as usually prescribed for, or undertaken by, the patient, varied little so far as the comfort it brought to the two types of cases (20% duodenal, 22% gastric eased); but the amount, quantity, and kind of food at times so modified the gastric syndrome that their care-

COMPARISON OF CLINICAL DIAGNOSES IN CASES OF OPERATIVELY DEMONSTRATED
DUODENAL AND GASTRIC ULCERS.

1300 DUODENAL ULCERS.

CLINICAL DIAGNOSIS.		Cases.	Per Cent.
Primary diagnosis, duodenal ulcer	702	54.0	
Primary diagnosis, gastric ulcer	323	24.8	
Secondary diagnosis, duodenal or gastric ulcer (repeated)	107	8.2	
Primary diagnosis, diseased gall bladder (G. B. alone 5%)	175	13.5	
Primary diagnosis, appendicitis (Ap. alone 1+%)	64	5.0	
Primary diagnosis, cancer	1.5		
Unclassified	1.0		

TIME OF APPEARANCE OF PAIN.

One-half to two hours P. C.	23.0
Two to five hours P. C.	77.0
One-half to 1 hours P. C.	8.0
Pain at night	14.0
Postural ease	8.0

LOCATION AND RADIATION OF PAIN.

Epigastrium	49.0
Radiation to back	24+
Radiation to left epigastrium	4.0
Radiation to abdomen and fossae	9.5
Radiation to right epigastrium	13.7

CONTROL OF PAIN.

Food or drink, or both	75.0
Alkalies	38.0
Irrigation	11.0
Diet	20.0
Pain continuous from onset of symptoms	4.0
Tenderness to touch	41.0
Vomiting	79.0
Gas	77.0
Hemorrhage by mouth	18.5
Blood by bowel	18.5
Perforation	28.7
Perforation into pancreas	17.0
Obstruction	26.0

451 GASTRIC ULCERS.

CLINICAL DIAGNOSIS.		Cases.	Per Cent.
Primary diagnosis, gastric ulcer	248	55.0	
Primary diagnosis, duodenal ulcer	119	26.5	
Secondary diagnosis, gastric or duodenal ulcer (repeated)	31	6.5	
Primary diagnosis, diseased gall bladder (G. B. alone 5%)	40	8.8	
Primary diagnosis, appendicitis	8	1.7	
Primary diagnosis, cancer	22	4.8	
Unclassified			2.8

TIME OF APPEARANCE OF PAIN.

One-half to two hours P. C.	50.0
Two to five hours P. C.	50.0
One-half to one hour P. C.	19.0
Pain at night	10.0
Postural ease	9.0

LOCATION AND RADIATION OF PAIN.

Epigastrium	52.0
Radiation to back	22+
Radiation to left epigastrium	10+
Radiation to abdomen and fossae	9+
Radiation to right epigastrium	6.6

CONTROL OF PAIN.

Food or drink, or both	66.0
Alkalies	33.0
Irrigation	9.0
Diet	22.0
Pain continuous from onset of symptoms	9.5
Tenderness to touch	48.0
Vomiting	82.0
Gas	94.0
Hemorrhage by mouth	25.0
Blood by bowel	24.0
Perforation	26.0
Perforation into pancreas	25.0
Obstruction	10.0

ful consideration helped in the differential diagnosis.

Though apparently so nearly similar are duodenal and gastric ulcers in their final analyses, there are some points that aid in their differentiation. In the whole picture, the coming and going of symptoms are not so distinctly seen in gastric ulcer. The pain in the gastric form often comes earlier after food (within 1 to 2 hours, in one-half the number), and frequently ceases in a short time, or before the next meal. It may return after a brief intermission, to be eased by the next meal, or the distress is such that food is refused lest pain be increased. This is more often the case in gastric than in duodenal ulcer, unless complications are present. Certainly when adhesions and perforations are present in any ulcerative lesion, and clearly more so in those well above the pylorus, pain may begin sooner after food intake. This *early* pain is due apparently to peristaltic movements,

tugging at the sensitive adhesions, quite as much or more so than to any acid fluid acting upon the chronic ulcer or open wound.

In gastric ulcer a small amount of food more frequently gives ease, while large amounts give immediate pain, and thus, patients with gastric ulcer are not so apt to depend upon food to give ease, or to so spontaneously state its comforting effect. Acid foods trouble gastric easers less than they do duodenal (and pyloric) easers.

Position is also a greater factor in high than in low ulcer. Pressure, as bending over the arms of a chair, or doubling up on the thighs, gives ease more frequently or prevents pain setting in so severely. Lying on the back or side, or on the stomach, is more often found comforting in gastric ulcer. Therefore, night pain is not so frequent: (1) perhaps because obstruction is less liable in gastric cases (26% duodenal, 10% gastric), or at least the narrow-

ing is less; (2) because the ulcer by the position assumed is relieved of the acid's immediate presence; (3) by the high location of the ulcer the irritating fluid falls below the ulcer or is pressed away from it; and (4) peristalsis eases when the body is at rest, or when pressure is applied. This differential point of position is much more clearly felt in history taking than seems apparent in our final percentages and should, we think, be considered.

Ulcers located toward the greater curvature, ulcers with extensive surfaces, and many saddle ulcers tend to more constant symptoms, thus exhibiting the symptoms of chronic complicated ulcers situated elsewhere. Perforations and adhesions seem more often to affect gastric ulcers than duodenal and, as before stated, peristalsis plays a more important part in pain production when adhesions limit the normal movements.

Eruption of burning sour-water (heartburn) or of tasteless or salty water (water brash) is more often mentioned by those who have gastric lesions. Also, bloating and its distress are more frequent in the cases of higher ulcers.

Pain that comes immediately or soon after food intake seems to point to cardiac, fundic or other extensive ulcerations, perforations, adhesions or obstructions. Coarse and large amounts of food may increase pain in any ulcer, but more constantly in gastric rather high in position, and high ulcers often seem to have periods of shorter duration (1 to 5 days) and shorter intermissions, or remissions which show a lighter grade of symptoms and tend to constant complaint. Thus the case may run month by month, pain earlier, not constant and decided food or soda ease; all symptoms varying somewhat as the amount and kind of food varies, giving one the impression of irregularity yet constantly of gastric origin. Duodenal or pyloric ulcers more often run an exact course day by day for days or weeks with decided food ease.

However, each case necessarily calls for its own careful consideration, because no symptom, or group of symptoms, can more than suggest location and often, as our histories show, the gastric case may have the pure duodenal syndrome and the duodenal case may quite as easily give the gastric type of symptoms. The diagnosis of a gastric lesion being made, the question of its exact location is not paramount. How best to treat the lesion and conserve the patient's health is the vital point.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Sept. 21, 1915: Diphtheria, 57, of which 16 were non-residents; scarlatina, 17, of which 5 were non-residents; typhoid fever, 18, of which 4 were non-residents; measles, 8; tuberculosis, 61, of which 3 were non-residents. The death-rate of the reported deaths for the week was 13.47.

Clinical Department.

THE USE OF CALCIUM IN THE TREATMENT OF EPILEPSY.*

BY JOHN BRYANT, M.D., BOSTON.

[From the Neurologic Out-Patient Department, Massachusetts General Hospital.]

My share in the study of this unfortunate class of epileptics to which Dr. Clymer has referred, is an inquiry into the physical characteristics of the epileptic with regard to type, and into the relationship (if any) between disorders, organic or nutritive, originating in the gastro-intestinal tract or in the fuel supply, on the one hand, and on the other, manifestations of ductless gland disorder and disturbance of function of the nervous system.

One phase only of the observations in progress can be referred to in the brief time at disposal, and this concerns the metabolism of calcium. In addition to faulty heredity, overwork and undernutrition or malnutrition, seem with considerable frequency to precede the onset of the attacks. Prolonged periods of malnutrition at once raise the question of dietary errors.

The time has gone by when it is complacently assumed that man ingests sufficient of the necessary mineral elements, no matter what may be his diet. It is well known that many poverty rations, such as white bread and potatoes, are very deficient in calcium. Bunge, in his "Physiologie," some years ago drew attention especially to the increasing use of alcohol and sugar as factors in the production of a calcium deficiency in the dietary of the poor, arguing that these substances satisfy appetite which otherwise would impel the ingestion of a larger proportion of calcium rich vegetables or fruits for the obtaining of the coveted sugars. It is also known that analyses of brain substance have demonstrated the presence in this tissue of less than the normal amount of calcium, in certain disorders marked by hyper-irritability of the nervous system; and recently Foote¹ has demonstrated a decreased calcium content in the femur of an idiopathic epileptic. Thirdly, calcium has been used in such explosive conditions as tic and tetany with reported success, but hitherto apparently only to a limited extent in the treatment of epilepsy. Therefore it has seemed worth while in the course of other observations to see what effect, if any, its use would produce.

The results have in some cases been sufficiently striking to warrant mention in the hope that they may be checked up by other workers. The official syrup of calcium lactophosphate has been used in doses of 5*i-ii* t.i.d. either a.c. or p.c. Calcium bromide could, of course, be used, and it is planned to employ this later, but at first the calcium preparation was simply added to pre-

* Presented at a clinical demonstration at the Massachusetts General Hospital, June 8, 1915.

¹ Foote: BOSTON MED. AND SURG. JOUR., 1915, Vol. clxxiii, p. 392.

existing medication without other change in the treatment. When thus used the calcium appears to produce at least three effects, in favorable cases; it promotes sleep, it decreases nervous irritability, and it acts in some measure as an antidote to bromide acne.

Favorable cases are those of *petit mal* type, which, according to Dr. Taylor, have hitherto been the least affected by bromides. Members of the clinic staff, familiar with the condition of some of the cases in question for months, if not years, before the present experiment commenced, have expressed themselves as struck by the sudden improvement in general appearance which has been displayed. Nearly all cases have shown some benefit, which may, of course, be partly a psychic reaction; but in a few cases it has been decidedly dramatic to note in the course of two or three weeks the change from surly and depressed irritability to a condition of apparent cheerfulness and regained faith in the future.

Calcium is not presented as a panacea. It may not cure any case, but it at least can be said that when added to existing only partly successful treatment by bromides, it has in some cases produced results sufficiently encouraging to make it seem desirable to mention its employment and possible value.

In closing, it is desired to focus attention upon a broader question related to calcium metabolism. It has been held that such manifestations, as for instance chorea, migraine, tie, tetany, and epilepsy, are absolutely unrelated disease entities. Proof is lacking. It is, on the other hand, not impossible that proof may be forthcoming to show that these diseases are, at least in some cases, merely different expressions of an underlying abnormality common to all, bearing to each other somewhat the same relation as do the visible and varying wave crests to the sea beneath. Three facts suggest that a lack of calcium may be such a common underlying factor in more than one of these conditions: many diets are deficient in calcium, calcium is deficient in the brain tissue of those afflicted with certain explosive manifestations, and some of these diseases have been markedly relieved by the administration of calcium.

These facts make it advisable to determine the extent to which a lack of the mineral constituents of the diet, and a lack of calcium in particular, may underly the manifestations, not only of epilepsy, but of various other explosive disorders of the nervous system which have hitherto been looked upon as disease entities.

SYNCHRONOUS INSPIRATION AND SYSTOLE IN A PATIENT EXHIBITING EQUAL RESPIRATORY AND PULSE RATES.

BY PAUL DUDLEY WHITE, M.D., BOSTON.

[From the Medical Service of the Massachusetts General Hospital, Boston.]

An Italian boy of six years of age with partial heart block and probable miliary tuberculosis, was under observation for three weeks (April 7-26, 1915). Involvement of the lungs was indicated by the Roentgen ray. He showed on at least six occasions on different days equal rates of respiration and pulse with synchronous inspiration and systole. In the record made with the Mackenzie ink polygraph (Fig. 1) inspiration, represented by the downstroke on the respiratory curve, precedes the pulse at the wrist, represented by the upstroke on the radial curve, by a little more than one-fifth of a second. Deducting from this interval the length of time from the beginning of systole to the appearance of the pulse at the wrist, which is about 0.18 second, the onset of systole is seen to be almost synchronous with the onset of inspiration, following it by a small fraction of a second. This interval varied in different records taken, at times systole preceding inspiration by a like interval. Sometimes, when an irregularity of the block occurred (3 to 1 and 3 to 2, instead of 2 to 1) the radial pulse became irregular but the respiratory rhythm continued unchanged. Similarly, when the breath was held the pulse kept on at a steady regular rate; at such times a loud systolic murmur ordinarily heard over the precordia, disappeared, to reappear when the patient resumed his respiration. An electrocardiogram shows clearly the 2 to 1 heart block present (Fig. 2).



FIG. 1.—Simultaneous tracings of radial pulse (lower curve) and respiration (upper curve). In the respiratory record, downstroke = inspiration, upstroke = expiration. Time interval = 0.2 sec.

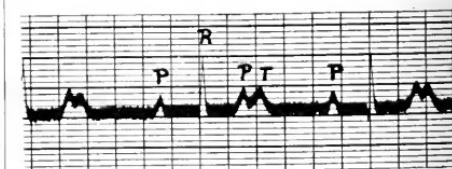


FIG. 2.—Lead I of electrocardiogram showing the presence of 2 to 1 heart block. The blocked auricular complex *P* falls on the upstroke of the ventricular deflection *T*. Abscissa, 0.2 sec. Ordinate, 10^{-4} volt.

WALTHAM TRAINING SCHOOL GRADUATION.—The annual graduation exercises of the Waltham Training School for Nurses were held in that town on September 24. The principal address was made by Dr. Alfred Worcester, and Dr. C. Benjamin Fuller presented diplomas to a class of 17 pupil candidates.

Reports of Societies.

CLINICAL CONFERENCE OF THE NEUROLOGICAL INSTITUTE, NEW YORK.

REGULAR MEETING, APRIL 29, 1915.

DR. J. RAMSAY HUNT, in the Chair.

CASE OF ASCENDING NEURITIS OF THE ULMAR NERVE.

DR. E. G. ZABRISKIE presented from the first division a case of ulnar neuritis in a woman, fifty-six, born in Germany. Occupation, housewife. In September, 1914, she ran a splinter into the outer surface of the left ring finger. Had a slight local infection which healed rapidly, so that in about a week was able to use the hand. From this time on, she noticed a slight numbness in the tip of the finger, but not until February, 1915, did this become very noticeable. At that time it extended to the root of the finger which began to contract and become stiff. This was followed by numbness extending up the arm, and at about the first of March she began to have severe pains in the palm, running up the forearm and into the shoulder. She can move the arm in all directions and there is no limitation of the movements of the elbow joints, but extension of the forearm causes pain in the elbow. She can close the fingers with great effort only.

Examination shows a pale, flabby woman with slight general emaciation. General examination is normal. There is aortic dullness to the right of the sternum and the first aortic sound is loud and rough. Examination of the right hand shows the fingers in a typical position of ulnar palsy. There is distinct tenderness all along the track of the ulnar nerve from the point where it passes over the medial condyle down to the wrist. The muscles supplied by the ulnar nerve are tender on pressure; there is distinct weakness of the interossei. There are no gross disturbances of cutaneous or deep sensibility. Pupils are equal and respond normally. Urine normal.

The interesting features of this condition lie first in the etiological factor; the most reasonable supposition is that we are dealing with a local infection of the terminal filaments of the ulnar nerve, with a subsequent ascending ulnar neuritis, but it is difficult to explain the lapse of time between the healing of the infection and the onset of the neuritis. But, because of the lack of other etiological factors, we are forced to accept this.

A CASE OF FROEHLICH'S SYNDROME WITH BLINDNESS AND CHOKE DISCS.

DR. JUNIUS W. STEPHENSON presented from the second division, a boy, twelve years of age, who two years previously began to have headaches. These headaches persisted, often being so severe as to keep him from school. There was also occasional vomiting, and during the past four months this has been rather frequent and severe. Eight weeks ago vision became affected and this progressed rapidly, until within six weeks there remained only a slight perception of light.

The patient was sent to the Institute by Dr. Dana, April 19, 1915, with immediate history as above stated. The history antedating his illness was uneventful except that he was considered a

"very large" baby and grew proportionately. Measles was the only infectious disease. The mother is a very large woman, weighing three hundred pounds. The father is said to have been "very large"; cause of his death not ascertained. He has one brother who is of large build.

The patient is very intelligent, and states that since the blindness, the headaches though persistent, are not so severe. He often refers to seeing "visions." His stature is large and somewhat flabby. The breasts are quite well developed and of the feminine type. The body hair is very scant. The testicles are undescended. The skin is dry and rough. He weighs 131 pounds.

The superficial and deep reflexes are all present, showing no abnormality other than at times a suspicious extensor plantar response on the right. Cranial nerves normal. The pupils are round, regular, widely dilated and yield only a slight response to light. Dr. Holden reports: Nystagmus to right and also quite marked when looking forward, when light is thrown into eye. Perception of light only. The disc shows papilledema with atrophy; elevation about five diopters.

The blood pressure has ranged between 110 and 120. Pulse 92-106. Temperature normal.

The serological examination of blood and spinal fluid was negative. W.B.C., 5200. Differential: neutrophiles, 64; eosinophiles, 2; large lymphocytes, 8; small lymphocytes, 25; transitional I. Repeated urinalyses negative. The sugar tolerance was 500 gms, levulose.

An x-ray of the sella turcica was taken while a patient at the Flower Hospital, and the Roentgenologist has kindly reported the following: "Hypophysal growth with erosion of sella."

Remarks. The general appearance of the patient, sugar tolerance and x-ray findings leave little doubt as to the location of the lesion causing the symptom complex. The one unusual finding is the presence of choked disc. This might be construed as evidence that we are dealing with a pineal growth and not a hypophysal. However, we cannot say the patient has not at one time had a hemianopsia, and a pineal growth as large as the x-ray shows this to be (about the size of a hen's egg) would quite probably show some cranial nerve involvement, such as the fifth, and symptoms referable to the third ventricle. Nor would a pineal growth produce the physical stature or influence the sugar tolerance. After the conference it was decided to have performed a puncture of the corpus callosum, and right subtemporal decompression as palliative measures, while awaiting the influence of organotherapy.

April 7th, 1915: Operation by Dr. Elsberg. Puncture of the corpus callosum and right subtemporal decompression. Considerable fluid escaped under great pressure following decompression.

The headaches were considerably relieved. There has been no vomiting. Vision has not been influenced.

May 10th, 1915: Fundi show elevation of one diopter and post neuritic atrophy of the optic nerves.

The case is interesting because of features not usually encountered in hypophysal growths with their consequent pituitary manifestations. The x-ray demonstrates a hypophysal growth and the picture presented by the patient himself is distinctly pituitary, but instead of a primary optic atrophy (the usual phenomenon) we find an enormous choked disc. The evidence of increased intracranial

pressure is further corroborated by the operation, which demonstrated the ventricular fluid under great pressure and there was considerable bulging at the site of the subtemporal decompression.

Again the general picture of the patient—small stature, excess of adipose tissue, infantile genitalia, femininity, etc.—presents the clinical picture of Froehlich's syndrome, the unusual feature being that here instead of a primary optic atrophy our patient is developing a secondary atrophy as the result of the general increase in intracranial pressure. The natural assumption is that the tumor is growing upwards in the region of the third ventricle.

A CASE OF UNILATERAL ASCENDING SPINAL PARALYSIS; REMARKS ON THE UNILATERAL TYPES OF SYSTEM DISEASE.

DR. J. RAMSAY HUNT presented from the second division, a man, 28 years of age, single, occupation, clerk. His family history was negative and there was no history of antecedent disease or injury which might have a bearing on the affection from which he was suffering. He denied lues and is moderate in the use of alcohol.

Onset: Seven years ago, with weakness and stiffness of the left foot, which gradually progressed and ascended the left lower extremity. During a period of five years these symptoms were limited to the left leg and gradually growing worse. At the expiration of this time, the movements of the left hand also became weak and stiff, and gradually extended to the whole of the left upper extremity.

These symptoms developed in the most gradual and insidious manner, without pains or paraesthesiae. There had been no headache, vertigo, diplopia, or visual disturbances. The sexual power was diminished. The speech is unaffected. Of late, the right leg tires readily on exertion, but there is no stiffness and the patient regards the right side of the body as normal, and refers all his troubles to the left side—the leg being more affected than the arm.

Physical Examination: The man is well developed, stands in a hemiplegic attitude and walks with a markedly hemiplegic gait, dragging the spastic lower extremity with difficulty. The cranial nerves are normal. Pupils equal and react normally. There is no nystagmus, no weakness of the face or deviation of the tongue. Speech is normal. The optic nerves and visual field are normal. The spine shows a well marked scoliosis, compensatory in character. All movements of the spine are free and there is no pain or rigidity. There is a well-marked spastic paralysis of the left leg and left arm. The knee jerks are exaggerated on both sides, left greater than right. The ankle jerks are also greatly exaggerated, the left greater than the right. The arm jerks are exaggerated on the left side. The abdominal reflexes are present and diminished, the left less than the right. Cremasterics present and inactive, left less than right. The Babinski reflex is present on both sides. There is also ankle clonus on both sides. All sensations, both superficial and deep, are entirely normal. There are no evidences of local muscular atrophy or of fibrillary twitchings. Both legs measure the same below the knees, viz., 13 $\frac{1}{4}$ inches. The circumference of the right thigh measures 19 inches and that of the left 17 inches. This difference is due to a slight secondary atrophy of the left thigh (spasticity) and also to a compensatory hypertrophy of the muscles

of the right thigh, this compensatory hypertrophy being the result of the extra exertion required in swinging and dragging the paralysed and spastic left lower extremity. There is no oedema of the extremities and the pulsation of the pedal arteries is normal.

The urine is normal and the Wassermann test of the blood and cerebro-spinal fluid is negative. The spinal fluid contains no increase of cells or of globulin.

The clinical picture is limited to a spastic paralysis of the left leg and arm, of gradual development, which for several years had been limited to the lower extremity. The reflexes on the right side (ankle clonus and the Babinski phenomenon) also indicate a pyramidal tract affection, but without disturbance of the gross motor power or spasticity.

Remarks: This case was presented as an example of that rare clinical type, a *unilateral progressive ascending hemiplegia*, due to progressive degeneration of one pyramidal tract, and first described by Dr. Charles K. Mills of Philadelphia.

It is a lateral sclerosis of unilateral type, the chief interest of which is the diagnostic problem presented, together with the fact that a system disease, which in most cases is symmetrical and bilateral, may on occasion appear and for many years progress as a unilateral affection. Unless the possibility of such an occurrence is considered, it may give rise to considerable diagnostic uncertainty. While in this case the clinical picture is one of gradually ascending hemiplegia of seven years' duration, the pyramidal system on the opposite side also shows signs of beginning degeneration, viz., fatigue of the lower extremity on exertion; ankle clonus and the Babinski reflex, and there can be little question that, as the disease progresses, the involvement of the opposite side will become more and more apparent.

In a case described by Mills and Spiller, with autopsy and histological examination, the course of the disease was for many years progressive hemiplegia, but later the lower extremity of the opposite side became involved (Triplegia). Histological study showed an old unilateral degeneration of the pyramidal system, with more recent degenerative changes on the opposite side.

Some years ago a young woman under my care developed a progressive ascending hemiplegia and later a triplegia; for about five years the symptoms were limited to an affection of the pyramidal tract system. At the expiration of this time the muscles of the hands began to atrophy, and the case gradually merged into the clinical picture of amyotrophic lateral sclerosis. This case is of interest as showing that amyotrophic lateral sclerosis may also begin as a unilateral pyramidal tract disease (ascending hemiplegia) and similar cases have been reported by other observers.

In the earlier stages of the unilateral progressive hemiplegia, a tumor of the cord might be closely simulated, but the absence of pain and sensory disturbances should serve in most cases to eliminate this doubt.

It is of interest to recall a case recorded by Oppenheim of unilateral progressive ascending hemiplegia associated with homolateral sensory disturbances. In this case, Oppenheim made the diagnosis of combined system disease of unilateral type, so that the possibility of unilateral postero-lateral sclerosis as well as one sided lateral sclerosis must be borne in mind.

Not only is the unilateral progressive hemiplegia a symptom-complex of system disease, but it may also occur as an expression of multiple sclerosis, as in a case recorded by Potts. I have also observed, progressive ascending hemiplegia with homolateral slight sensory disturbances, very closely resembling the cases described by Oppenheim as unilateral postero-lateral sclerosis. Later, however, an autopsy revealed old lesions of multiple sclerosis in the spinal cord.

Of very special interest is the occasional occurrence of paralysis agitans as an ascending hemiplegia. The rigid form of Parkinson's disease without tremor is well-known and requires no special comment, but that this may occasionally assume a progressive hemiplegic form is not so well known, and has been emphasized by Patrick of Chicago. In such cases the motor disturbances assume the characteristic rigidity of Parkinson's disease and not the spasticity of pyramidal tract affections.

To summarize then: the unilateral ascending progressive hemiplegia is the unilateral expression of a system disease, such as lateral sclerosis, amyotrophic lateral sclerosis and postero-lateral sclerosis. It may also occur in the earlier stage of paralysis agitans, and like most other clinical types, may occasionally result from an unusual combination of the lesions of multiple sclerosis, and of cerebro-spinal syphilis.

CASE OF ATYPICAL PARALYSIS AGITANS, WITH LIMITED OCULAR MOVEMENTS.

DR. THADDEUS H. AMES presented from the third division, a man, aged 62, with slowness of gait, a general rigidity of body and speech disturbance.

For about twenty months the patient has been suffering from a progressive loss of "eunning of the hand," and all of his movements have been slower and more awkward. He cannot bend over nor get up from a chair easily, and his gait has been slower. His head is stooped, his eyes staring, and his body rigid, so that as he walks in the street he is an object of attention. He has stuttered all his life, but in the past ten years the stuttering disappeared. For the last year the speech has been slow, monotonous and drawling. No pains, tremors and no trouble in swallowing. Never loss of consciousness. No sphincter trouble. Patient has been extremely constipated during the past twenty months. Previously he was regular.

Examination: Man of weight about 200 pounds. Stands in a stooped position, with head set, shoulders rounded. He walks in a stiff, awkward, slow manner. No festination. No tremors. No ataxia, nor incoördination of hands or feet; no cog-wheel motion of arms. No rigidity of joints. Paralysis of superior recti: right equals left. Slight nystagmus.

Vision: 20/40 in right eye, 20/100 in left eye. Fundi normal. Fields normal. Pupils equal, regular, round, Reaction slightly sluggish.

Speech: Slow, monotonous, drawling. No disturbance in the pronunciation of syllables. No trouble in swallowing. Hearing normal. Reflexes: K. J.'s present and equal. Achilles jerk present and equal. No Babinski. No Oppenheim. Blood pressure 150. Blood Wassermann negative.

Treatment: Patient has been given successively potassium iodide, thyroid gland, pituitary gland, parathyroid and cathartics, without any improvement.

NOTE (Two months later). The condition of the patient is progressively worse. The gait is slower and walking is more difficult. The body is held in even a more rigid position as he walks and stands. When he sits down he has more difficulty than before. He says that he has fallen to the ground a number of times in the past month because his thighs have become so weak, they could not support his body. He does not trip and fall.

The movement of the eyeballs is just the same. There is no rigidity of the arms or legs on rapid passive oscillations. At times, as he makes gestures, there is a momentary coarse tremor of the right hand, but this subsides at rest. This is not an intention tremor.

This case is presented as an atypical form of paralysis agitans, based on the stooped, rigid attitude with slowness of movements, the mask-like countenance and the character of the speech. There is, however, no typical tremor. The most puzzling feature of the case is the presence of the limitation of ocular movements. There is no movement whatever upward or downward of the eyeballs, though the lateral movements are normal. The eyelid movements are normal.

Book Reviews.

What Every Mother Should Know About Her Infants and Young Children. By CHARLES GILMORE KERLEY, M.D., Professor of Diseases of Children, N. Y., Polyclinic Medical School and Hospital. New York: Paul B. Hoeber. 1915.

This little book of about fifty pages "was prepared at the suggestion of a child's welfare organization. Its purpose is to place in the hands of the mother of moderate means, concise, readily understood and practical instructions for the care of her infants and young children." The advice given is, as is all the advice given by Dr. Kerley, reasonable, practical and easily understood. It should prove useful to those for whom it is intended. An unusual feature of the book is that the left hand page is left blank for notes.

The Starvation Treatment of Diabetes. With a Series of Graduated Diets as Used at the Massachusetts General Hospital. By LEWIS WEBB HILL, M.D., and RENA S. ECKMAN (dietitian), with an Introduction by RICHARD C. CABOT, M.D. Boston, Mass.: W. M. Leonard. 1915.

Any practitioner following the suggestions of this book will have greater success in the treatment of his diabetic patients than hitherto. Of course it would have been helpful if the number of cases which had been treated at the Massachusetts General Hospital under the observation of the writers had been mentioned and the results given. However, as it is, the book will be useful because it states in simple form the diets which may be followed by the patient.

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THE ORIGIN OF THREE DUBLIN HOSPITALS.

DUBLIN has long been famous for its hospitals, which are not only numerous, but, in many instances, of ancient foundation and, in one case at least, of international repute. There are ten general clinical hospitals in Dublin, with three lying-in hospitals, two hospitals for children, another for contagious diseases, an orthopedic hospital, an ophthalmic hospital, a dental hospital and several other special institutions. Of all these the Steevens' Hospital is the oldest, but the most famous is, of course, the Rotunda.

The Rotunda Hospital had its origin in the sympathetic and far-sighted energy of Dr. Bartholomew Mosse, who was born in 1712 in County Down, the son of an Irish clergyman. Making his resolution to study medicine, Bartholomew was apprenticed to Mr. John Stone, a surgeon of Dublin. Completing this apprenticeship in 1773, Mosse determined to enter the army and, after examination by Surgeon-general

John Nichols, who pronounced him a physician well qualified to practice the art of surgery, Mosse was given medical charge of troops in various British garrisons. In 1738 he went with a contingent to Minorca. Here he seems to have withdrawn from the army service, and after traveling for a time on the continent, he returned to Dublin, and in 1742 was admitted a licentiate of the Irish College of Physicians. By this time he had become particularly interested in obstetrics, an art then far more highly advanced on the continent than in Britain, and he realized the utter inadequacy of the care that could be given to the poor women of Dublin in their homes. He, therefore, undertook to raise the necessary funds to establish such an institution, and finally on March 15, 1745, first opened "an hospital for poor women in George's Lane." This first building of what afterwards became the Rotunda Hospital was a three-storied house, which, with an outbuilding, afforded accommodation for twenty patients.

The difficulty which now confronted Mosse, a difficulty which still constitutes the chief problem of most charitable institutions, was that of obtaining adequate means to maintain the hospital thus established. After the first interest of the public had worn off, sufficient funds could not be raised by mere private subscriptions, and Mosse showed great ingenuity in supplementing these by lotteries, theatricals, concerts, dances and other entertainments. He succeeded so well in fact, and his hospital immediately proved of such value to the community, that he was encouraged to plan a much larger and more ambitious building. The story of this new building, as told by Dr. Kirkpatrick in his admirable history* (reviewed in the issue of the *Lancet* for Feb. 14, 1914), is in part as follows:

"In August, 1748, he took upon himself the responsibility of a lease for three generations of four acres and one rood of land on the north side of Great Britain street, whereon to erect a lying-in hospital for at least 150 patients. He first laid out the grounds as public gardens, after the model of the Vauxhall Gardens, London, upon which he expended some £2000 of his own money, walling-in the grounds, erecting an orchestra, concert room, and coffee room, and planting trees and shrubs. Here he organized a series of entertainments with a view to producing a yearly income for the benefit of his char-

* The Book of the Rotunda Hospital. An illustrated history of the Dublin Lying-in Hospital from its foundation in 1745 to the present time. By T. Percy C. Kirkpatrick, M.D., M.R.I.A., Fellow and Registrar of the Royal College of Physicians of Ireland. Edited by Henry Jellett, M.D., F.R.C.P.I., Master of the Hospital. London: Adlard and Company. 1913.

ity. His expectations were not disappointed, and in fact to this day the hospital still draws a considerable income from the entertainment rooms and pleasure grounds established by him.

"The foundation-stone of the new hospital was laid on July 9, 1751. In December, 1756, a Royal Charter was granted. Mosse was appointed Master for life, and shortly afterwards a parliamentary grant of £6000 was paid over to the governors, less £180 deducted at the treasury in certain imposts.

"Nearly a year later a committee of the Irish House of Commons gave a further grant of £6000 for the completion of the hospital, and a benefaction of £2000 to 'Bartholomew Mosse, Master of the said Hospital, as a reward for his great Care and Diligence in Attending the Lying-in Hospital in *George's-Lane*, thirteen years, and superintending the new Hospital in *Great Britain-Street* nine years and a half, by which he hath greatly injured himself in his profession, and hurt his Family in their Circumstances, having never received any reward.' Thus, after the overcoming of stupendous difficulties the New Hospital, from designs by the great contemporary architect, Richard Castle, was opened on Dec. 8th, 1757, 12½ years after the establishment, as a private venture, of the original hospital in *George's-Lane*. At the time of the transfer from the old to the new hospital Mosse was able to report that 3975 women had been delivered in the old hospital, with a maternal mortality of 1.10 per cent, 'mostly of fever several days after they were safely delivered,' at a total cost of £3913 13s 0¾d."

Unhappily Dr. Mosse did not live long to enjoy the fruition of his labors and to carry out his plans in the administration of the new institution. He died on February 16, 1759, and was succeeded as Master by Dr. Sir Fielding Ould. In his estimate of Mosse's character, Dr. Kirkpatrick says:—

"We find no trace of self-seeking in any of the work done by Mosse. His hospital was everything, and though he claimed honour as its founder, it was only through it and its success that he made any such claim. There is no evidence that he ever used the hospital for his own advantage, either in the way of making money by it, or to advance his professional reputation. Indeed, for the hospital he seems to have sacrificed his entire income and to have abandoned any hope of rising to professional eminence. But little evidence is forthcoming as to his private life, but such as there is seems to proclaim him a good husband and father and a generous friend."

It is evident that Dr. Mosse was a man of unusual personality, of energy, persistence and a genuinely charitable disposition, and the hospital which he established, later acquiring the

name of the Rotunda, has retained to this day the stamp of the individuality of its founder.

Older than the Rotunda hospital, in fact the oldest in Dublin, though not nearly so well known, is the Steevens' Hospital at Kingsbridge in the west end, an institution founded by Dr. Richard Steevens and his twin sister Grizell, children of the Reverend John Steevens, an enthusiastic Scottish Jacobite exiled to Ireland by the iron hand of Cromwell. Born in Athlone, Richard Steevens, after studying divinity for a time, abandoned it for medicine and, removing to Dublin, developed an extensive practice among the poor of that city. There were then no free dispensaries in Dublin, no charitable organizations except the churches, and not a single hospital. The need of medical relief and care was urgent. For years Dr. Steevens and his sister, neither of whom was ever married, devoted their labors and their private fortune to such ministration as could be carried out in the homes of the poor. It was the doctor's dream to establish a hospital similar to those in the large cities of the continent, but he died in 1712 at the height of his popularity and activity as a medical practitioner without carrying his plan into execution. His sister Grizell, however, on the day following his death, made over to a board of trustees the estate bequeathed to her by her brother reserving for herself only an income of £150 a year. With this fund, the trustees purchased a suitable site near the southern bank of the river Liffey in the poorer quarter of the city and began to accumulate the necessary money for a building. In this there was considerable delay, but finally, in 1720, the first hospital ward in Dublin was begun. It was not completed, however, until 1733. By this time all the members of the original board of trustees had died and had been successively replaced by others, among whom may be noted the distinguished name of Jonathan Swift, then dean of St. Patrick's Cathedral, whose signature may still be seen in the records of trustees' meetings and in other archives of the hospital. The faithful Miss Grizell Steevens resided at the hospital and acted as its superintendent until her death in 1746 at the age of 93 years. In her time the capacity of the hospital was 40 beds, but it has since been enlarged to over 200. The original building, however, remains as the centre of the present institution, and in it are treasured the portraits of Dr. Steevens and his sister, the documents and other reliques pertaining to the hospital's history,

and the living memory of the two faithful and devoted founders who, after years of self-sacrifice and endurance, established for the suffering poor of Dublin their first institution of charitable medical relief.

Neither so old nor so famous as the Steevens' Hospital or the Rotunda, Sir Patrick Dun's Hospital is one of the older and more notable hospitals of the city. Sir Patrick Dun, for whom it was named, was a native of Aberdeen. He was an army surgeon and was present at the battle of the Boyne where he is said to have treated the Prince of Orange for some slight injury. Subsequently Sir Patrick did not return to Great Britain but settled in Dublin, where he became a noted local practitioner and acquired considerable estates in County Waterford.

On his death in 1714, he left his property to the Irish College of Physicians to establish a library and to endow a professorship of medicine. For a century his estate grew rapidly in value so that in 1800 the accumulated income was sufficiently large to establish a hospital in Dublin which was named in honor of Sir Patrick. It was opened for patients in 1808 and enlarged to its present size in 1814. Since this time, however, the value of the Dun estate has steadily dwindled and the hospital has become dependent like others on public charity. In June, 1914, was observed the bicentennial anniversary of the death of Sir Patrick Dun and the centennial of the completion of his hospital; and at this time a considerable sum of the money was raised to constitute the nucleus of a new endowment fund. The hospital has always been closely associated with Trinity College Medical School and the majority of its staff are professors in that institution. Besides caring for the sick poor, therefore, this hospital has had a conspicuous part in medical education in Ireland. It now accommodates about 100 patients. There has recently been opened in the hospital a new ward to be used exclusively for wounded soldiers and sailors, the funds for which have been given by the County Wicklow Red Cross Society. Thus in its present, as well as in its past, Sir Patrick Dun's Hospital has maintained the military association appropriate to an institution deriving its name and origin from a distinguished army surgeon.

These three hospitals of Dublin, unlike the larger and more modern institutions of many cities, have thus a personality and distinction dependent on the circumstances of their origin.

They were not built and fully equipped at their outset with adequate funds derived from taxation or from large charitable gifts; but were conceived in the hearts of men and women who earnestly and sincerely desired to help their poor and suffering fellow citizens. They were dreamed of and worked for, suffered for, earned and brought to full development and usefulness only after years of effort and uncertainty. They are living institutions whose character represents the personalities and lives of those to whom their origin is due.



THE RELATION OF ENTAMOEBA TO MENTAL DISEASE.

It is now well-known that the condition of the teeth plays a not inconsiderable rôle in the genesis of gastro-intestinal disorders, and has an intimate relationship to general bodily conditions. The teeth as a focus for chronic infection are now given their just recognition. Much has been written on this subject in the past few years. It is not, therefore, surprising that the rôle of chronic focal infection, with the teeth as the atria, in the production of psychoses should be investigated and critically scrutinized.

We know only too well that many mental cases have poor teeth and inflamed, suppurating gums. So pronounced and so constant is this in many patients that it is logical to suspect that in some instances there may be a relationship other than coincidence or coëxistence between the mental state and the mouth condition.

With these ideas in mind, an investigation was recently undertaken by Sawyer and was reported to a meeting of alienists and neurologist held under the auspices of the Chicago Medical Society last July (see the official bulletin of the Chicago Medical Society for September 18, 1915). Thirty-five patients were examined, of whom 26, or 74.2% showed entamoeba, while 9, or 25.7% did not show entamoeba. There was a motley group of conditions found in these patients, but 50% were of the manic-depressive type. The general tendency in most cases was to depression. The treatment consisted, in all patients but one, of four hypodermic injections of emetin, one half a grain each day, plus general treatment consisting of hydrotherapy, massage, full meals, outdoor exercise, and other forms of medication. The author asserts that those patients who received emetin treatment in addition

to the general measures instituted responded more rapidly to these general measures after emetin treatment had been given than similar patients not treated by emetin.

His experience in this research leads Sawyer to draw certain interesting conclusions. Briefly enumerated they may be given as follows: Entamoebae are very common in mental disease. Entamoebae generally accompany poor teeth. It may be said that they are practically always present with suppurating gums. They seem to accompany depressed mental states in particular. Constipation is usually caused by these entamoebae, which may accompany other nervous lesions, such, for example, as multiple neuritis. It must be appreciated that mere removal of the entamoeba does not in itself cure the diseased condition, its function being limited to the cure or removal of the cause. In mental cases exhibiting depression, with poor teeth and suppurating gums associated, entamoeba should be sought, and if discovered, the emetin treatment should be administered, to be followed by general upbuilding therapy.

These findings by Sawyer are interesting, and whether or not entamoebae really have any direct relationship to certain cases of mental alienation, it certainly must be granted that decayed teeth and suppurating gums, with the bad oral hygiene necessarily resulting, do not add to the patient's physical health. In fact they may destroy the appetite, lead to gastro-intestinal upset, constipation or diarrhea, salivation, and foul breath, and make of the mouth, gums and teeth excellent culture media and breeding places for the germs there existing, with the possibility of chronic focal infection playing a definite rôle in relationship to anemia, lowered general bodily health, focal toxic or infective conditions elsewhere in the body, and perhaps even to the mental condition of the patient. The condition should surely receive more consideration than psychiatrists have been in the habit of giving it in the past, and oral hygiene should be a by-word among the mentally disturbed as well as it is among the mentally balanced.

articles on "Birth Control" by Mr. Havelock Ellis in *Physical Culture*. In the October number of this publication Mr. Ellis presents the second of his series, in which he discusses more particularly the prevalence of contraceptive methods, the justification of their use, and the responsibility of physicians with regard to their explanation and recommendation. He calls attention particularly to their adoption in the various European countries and in the United States.

"It was in France, so often at the head of an advance in civilization, that birth control first became firmly established, and that the extravagantly high birth-rate of earlier times began to fall; this happened early in the nineteenth century, whether or not it was mainly due to voluntary control. In England the movement came later, and the steady decline in the English birth-rate which is still proceeding, began in 1877. . . If we examine the latest statistics for Europe (usually those for 1913) we find that every country, without exception, with a progressive and educated population, and a fairly high state of social well-being, presents a birth-rate below 30 per 1,000. We also find that every country in Europe in which the mass of the people are primitive, ignorant, or in a socially unsatisfactory condition (even although the governing classes may be progressive or ambitious), shows a birth-rate above 30 per 1,000. France, Great Britain, Belgium, Holland, the Scandinavian countries and Switzerland are in the first group. Russia, Austro-Hungary, Italy, Spain and the Balkan countries are in the second group. The German Empire was formerly in this second group but now comes within the first group, and has carried on the movement so energetically that the birth-rate of Berlin is already below that of London, and that at the present rate of decline the birth-rate of the German Empire will before long sink to that of France. Outside Europe, in the United States just as much as in Australia and New Zealand, the same great progressive movement is proceeding with equal activity."

Mr. Ellis thus puts himself in the position of approving, even enthusiastically advocating, the practise whose phenomenal result probably constitutes one of the greatest perils and weaknesses of the nations in which it prevails. In the present European war, for whose purposes Germany essentially still belongs in the second group, the ultimate decision may well rest on the factor of numbers, on the exhaustibility or inexhaustibility of the supply of fighting men. There is no question that Germany had already begun to feel the deteriorating effects of civiliz-



BIRTH CONTROL AND DYNAMIC EVOLUTION.

In the issue of the JOURNAL for Sept. 23 we commented editorially on the first of a series of

zation in the decline of her birth-rate. It is well known that this decline has caused the gravest apprehension among German physicians and sociologists, that articles pointing out its danger have appeared in German medical journals, and that measures to combat it have been suggested and even, to a certain extent, adopted.

This attitude of the German medical profession (an attitude largely shared by the French and English, it should be noted) is quite different from that which Mr. Ellis would adopt.

"In Holland nurses are medically trained in a practical knowledge of contraceptive methods, and are thus enabled to enlighten the women of the community. This is an admirable plan. Considering that the use of contraceptive measures is now almost universal, it is astonishing that there are yet so many so-called 'civilized' countries in which this method of enlightenment is not everywhere adopted. Until it is adopted, and a necessary knowledge of the most fundamental facts of the sexual life brought into every home, the physician must be regarded as the proper adviser. It is true that until recently he was generally in these matters a blind leader of the blind. Nowadays it is beginning to be recognized that the physician has no more serious and responsible duty than that of giving help in the difficult path of the sexual life. Very frequently, indeed, even yet, he has not risen to a sense of his responsibilities in this matter. It is well to remember, however, that a physician who is unable or unwilling to give frank and sound advice in this most important department of life, is unlikely to be reliable in any other department. If he is not up to date here he is probably not up to date anywhere."

Mr. Ellis's statements in these last few sentences may be thoroughly sound, but probably hardly in the sense which he intends. That the physician should be a purveyor of the popular knowledge of contraceptive methods seems a prostitution and perversion of his special function to preserve rather than prevent life.

In conjunction with Mr. Ellis's theories may be noted also those of Mr. Casper L. Redfield, of Chicago, upon whose writings we have commented editorially in several previous issues of the JOURNAL. The burden of his contention is that human breeding, to attain the best results, should not proceed more rapidly than at the rate of three generations in a century, and that this end may be attained by the postponement of parentage to the fourth decade of life. This process of selecting the optimum period of life for reproduction (a time by no means definitely determined as yet) he terms dynamic evolution,

and he has recently published a book about it, under this title.* Basing his assertions on the phenomena of horse and dog breeding, Mr. Redfield discusses the possibility of transmitting acquired characteristics, and the consequent probability of procreation after such valuable characteristics have been developed.

Naturally any such method of dynamic evolution involves birth control, so that the conclusions of Mr. Redfield and Mr. Ellis come to much the same. As a matter of fact, it seems that both have again somewhat mistaken effect for cause. It is not the facts of late parentage and birth restriction which are apparently beneficial, but the improved environmental conditions which often, but not invariably or necessarily, attend them. Not late parentage or restriction, not birth control or dynamic evolution, but improvement of environment is perhaps the factor most needful at present in any attempt experimentally to better the human race.

MEDICAL NOTES.

NEW YORK ACADEMY OF MEDICINE.—The Westley M. Carpenter Lecture for 1915 will be delivered by George W. Crile, M.D., on "The Kinetic Drive—Its Phenomena and Its Control," on Thursday evening, October 7, at the Academy of Medicine, New York City.

ONE HUNDRED THIRTY-NINE LIVES SAVED IN NEW YORK.—According to figures just issued by Commissioner Goldwater, there were 1236 deaths with a rate of 11.11 last week, as compared with 1323 deaths and a rate of 12.36 for the corresponding week of last year. This difference of 1.25 points in the weekly rate is equivalent to a saving of 139 lives. The following diseases showed a decrease; diphtheria, cerebrospinal meningitis, heart disease, Bright's disease, digestive diseases, pulmonary tuberculosis, lobar and broncho-pneumonia. The only noteworthy increase was in the number of deaths from diarrhoeal diseases in children under five. This increase was due to the warm and humid weather that prevailed last week which caused almost an epidemic of gastro-intestinal disturbances amongst young children.

Considered from the viewpoint of age distribution, there was an increase in the number of deaths of infants under one year of age and between one and five. At the other age periods there were fewer deaths than during the corresponding week of last year.

The death rate for the first thirty-nine weeks

* *Dynamic Evolution.*, By Casper L. Redfield. New York and London: G. P. Putnam's Sons. 1915.

of 1915 was 13.43 as compared with a rate of 13.90 for the corresponding period of last year.

AMERICAN ASSOCIATION OF CLINICAL RESEARCH.—The seventh annual meeting of the American Association of Clinical Research was held at the Hahnemann Medical College, Philadelphia, from September 23 to 25. The presidential address was delivered by Dr. Jefferson D. Gibson of Denver on the therapeutic use of the x-ray. At the session on September 24, Dr. Thomas B. Crothers of Hartford, Conn., outlined his method of treatment of drug habitués; and Dr. John M. Craig of Philadelphia reported experiments aiming to increase the utility of radium by more economic utilization of its emanations. Dr. Roger M. Griswold of Kensington, Conn., advocated compulsory medical inspection of school children and hygienic improvement of working conditions in the various industries.

AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.—At the recent meeting of the American Electro-Therapeutic Association, the following officers were elected for the ensuing year: President, Dr. Jefferson D. Gibson, Denver, Colo.; vice presidents, Dr. J. Willard Travell, 27 East 11th St., New York; Dr. Frank B. Granger, 591 Beacon St., Boston, Mass.; Dr. William L. Clark, 1809 Chestnut St., Philadelphia, Pa.; Dr. Sidney A. Twinch, 24 Fulton St., Newark, N. J.; Dr. William Martin, Atlantic, N. J.; treasurer, Dr. Emil Heuel, 151 West 87th St., New York, N. Y.; secretary, Dr. Byron Sprague Price, 65 Central Park West, New York, N. Y.; registrar, Dr. Frederick M. Law, 576 Fifth Ave., New York, N. Y.

INTERSTATE EXTERMINATION OF MOSQUITOES.—It is announced from New York on September 28, that Dr. S. S. Goldwater, health commissioner of that state, has established plans to organize an interstate commission for the extermination of mosquitoes. This commission is to have its headquarters in New York City with auxiliary branches in Connecticut and New Jersey. It is planned to secure the coöperation of town, county and state health officials. It is hoped that gradually the work may be extended to other states. Dr. Rupert Blue, surgeon-general of the United States public health service, has offered his approval and aid to the organization.

DECREASE OF TYPHOID IN OREGON.—In 1910, there were in Oregon 172 deaths from typhoid. In 1914 this figure was reduced to 62. While the rate for the country is from 28 to 38 deaths per 100,000 inhabitants that of Oregon for the past year was less than 9.

For comparison it is interesting to note that the typhoid rates for Boston in 1911, 1912 and 1913 were 9.1, 7.9 and 8.2 per 100,000 of population, in the later years about the same as the

whole state of Oregon, and since the rate for Massachusetts is not far from that of Boston, Oregon and Massachusetts are not far apart, with a little advantage in favor of the latter.

INCREASE OF CANCER DEATH RATE.—Report from Philadelphia on Sept. 22, states that at the annual convention of the Medical Society of Pennsylvania recently held in that city, the cancer commission of the society presented in its report data showing a marked increase in the death rate from cancer disproportionate to the increase in population. Since 1906, the report shows, the death rate from cancer in Pennsylvania has increased 23½%. "Last year the number of deaths from this cause totalled 5197 and the prediction is made that this year the number will reach 6000. The report further states that a large majority of the deaths were unnecessary and could have been avoided if health officials and physicians had been alert in recognizing early symptoms. One of the recommendations made by the commission was that the state examining boards for trained nurses as well as for physicians include among their requirements a thorough knowledge of the early recognition and early treatment of cancer. It was pointed out that the hope for reducing the number of deaths lies not in radical operations in advanced cases but in early treatment."

LOSS OF ST. LOUIS UNIVERSITY EXPOSITION.—At the beginning of the summer a medical party was sent by the St. Louis University to British Honduras for purposes of research. One member of the party, Dr. Edward Nelson Tobey, was a passenger aboard the fruit steamer *Maroujane* which was wrecked in a hurricane on Friday, Aug. 13, in the Caribbean Sea. He has not been heard from since and is believed to have perished. He was a lecturer in the medical department of the University and assistant bacteriologist of the city of St. Louis.

PREVALENCE OF MALARIA, MENINGITIS, POLIOMYELITIS AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for September 17 states that during the week ended August 28, 23 cases of cerebrospinal meningitis were reported in Chicago, 9 cases of poliomyelitis in Cleveland and 90 cases of typhoid fever in New York. During the month of July there were reported in Arkansas 1343 cases of malaria and 128 of typhoid fever.

WORK OF ROCKEFELLER FOUNDATION IN CHINA.—In last week's issue of the JOURNAL we noted the intention of the Rockefeller Foundation to engage actively in the promotion of medical education in China. In the third part of its annual report issued in New York on September 26, the

Foundation presents the conclusions of its commission which investigated medical conditions in China last year.

"This commission met in Pekin about May 1, 1914, and spent the next four months in a thorough study of existing medical schools, hospitals and dispensaries in China, and in conference with missionaries, government officials and other competent advisers in regard to the best means of reënforcing and adding to the important work already done in the field of medical education and public health. A fifth month was devoted to the preparation of an elaborate report of the observations, findings and recommendations of the commission.

"The establishment of the China Medical Board was the result of the commission's report. Dr. Wallace Buttrick, executive secretary of the General Education Board, was appointed director of the board and Roger S. Greene was appointed resident director in China. The president of the Foundation was elected chairman of the board, and Dr. Eben C. Sage, secretary."

SALE OF RED CROSS CHRISTMAS SEALS.—The National Association for the Study and Prevention of Tuberculosis has recently issued a statement of its plans for the sale of Red Cross seals during the coming season; 200,000,000 of these seals are now being printed and prepared for distribution.

"The organization of the Red Cross seal sale this year will take in every state and territory of the United States, including Hawaii, Porto Rico, and the Canal Zone. By Dec. 1 over 500,000 workers,—men, women and children,—will be engaged in the campaign.

"The sale in 1914 broke all previous records, totaling over 55,000,000 seals, an increase of 22% over 1913. After deducting all expenses, this left nearly \$500,000 for tuberculosis work in this country. The money has been and is being expended by over 2000 different agencies who benefited from the sale in amounts ranging from \$100 or less to over \$25,000. The American Red Cross announces that it will continue its previous successful policy of charging only 10% of the gross proceeds to state anti-tuberculosis associations, hereby encouraging local work."

The Massachusetts Anti-Tuberculosis League has been appointed by the National Red Cross as the agent for the sale of Red Cross Christmas seals in that State.

"The League is anxious to have these seals sold in every community in the State, and it is ready to appoint agencies for this purpose.

Such agencies as are properly organized for local tuberculosis work will have the privilege of using 82½% of the proceeds from the sale of the seals in their locality. The League is also anxious to have clubs and other organizations, stores, etc., sell the seals with the understanding that the entire proceeds are to be returned to the League. Bear in mind that the proceeds from

the sale of these seals are used for tuberculosis work in this state.

Applications for these agencies should be sent to the office of the League, 4 Joy Street, Boston, at an early date.

Last year 1,827,982 seals were sold in this State, and the League wishes, through the co-operation of agencies and individuals, largely to increase the sale this year."

EUROPEAN WAR NOTES.

CHOLERA IN GERMANY.—It is reported that during the week ended August 21, there were three cases and one death of Asiatic cholera at Brandenburg, Germany, and 126 cases with 70 deaths among prisoners of war at various detention camps in that country. During the week ended August 28, there were two cases of cholera among civilians at Frankfort and several among prisoners of war. Nevertheless, the cholera season has nearly passed without a serious outbreak of the disease in Germany and Austria.

DETENTION OF AN AMERICAN SURGEON.—It was reported in New York on September 24 that Dr. Hermann Fischer of the German hospital in that city, who sailed thence on September 9 aboard the steamer *Oscar II* for Copenhagen in company with three other surgeons and four nurses, forming the first contingent of the American physicians' expedition committee bound for hospital service in Germany, has been detained by the British authorities at Kirkwall, England, for lack of the necessary identification papers. It is expected that he will be released as soon as these have been forwarded from America.

GERMAN COURTESY TO AMERICAN RED CROSS UNITS.—Report from Berlin by way of London on September 23 states that the German government has bestowed medals upon all members of the American Red Cross units which have been serving in the hospitals at Gleivitz and Kozel. Similar decorations have been bestowed by the Austro-Hungarian government upon members of the American Red Cross units serving at Vienna and Budapest. At the closure of these hospitals on October 1 nearly all the members of the American units volunteered for service on the German mission to Russia to care for German prisoners in that country and in Siberia. This expedition has already left Berlin, and prior to its departure the members were given a reception by the German crown princess.

WORK OF THE AMERICAN AMBULANCE HOSPITAL.—In the issue of the *Survey* for September 18 was published a communication from the Paris Committee of the American Ambulance Hospital at Neuilly containing a statement by Dr. J. William White, summarizing the work of the Hospital since September, 1914:—

"July 18, 1915.

"At the beginning of this month the records since September last showed that there had been 109,537 hospital days. The expenses per patient per day had been reduced from \$2 to \$1.16. The number of patients had risen from 161 to 535. The ambulance (transportation) service is divided into sections. The Paris section transported during the month of May 932 wounded, at a cost of 1829.90 francs, or 1.96 francs (a little less than 40 cents) a head, a figure which I learn is the lowest yet attained in Paris.

"The total number of cases transported during the month by the various sections, including those at Dunkirk, Pont-a-Mousson, St. Maurice and Juilly, was 10,505, and the average cost per wounded man was 1.79 francs (35 cents). May was the eighth month of effective ambulance service for the hospital and up to that time they had transported 38,057 wounded.

" . . . I want merely to record my conviction, in fact my definite knowledge, that it (the hospital) has been run most intelligently and with that sense of a proper proportion between necessary and unnecessary economies, and of the difference between extravagance and wise liberality, which marks capable hospital management."

SUPPRESSION OF TYPHUS EPIDEMIC IN SERBIA.—Report from Naples by way of Paris on September 22 states that Dr. Richard P. Strong, chief of the American Sanitary Commission in Serbia, was about to sail from that port for the United States. In a statement issued prior to his departure he described the situation in Serbia:—

"The situation in Serbia when the American commission arrived was grave, owing to the widespread scope of the epidemic having caused demoralization, and the lack of doctors, whose numbers had been depleted because of the war and disease. There were a few English, French, and Russian doctors working individually, but no central organization existed.

"The Americans remedied this condition, however, by appointing a central commission, headed by Crown Prince Alexander, which was given control of sanitary measures throughout the country. Having full powers, the American doctors enforced the methods that had already borne fruit in the Philippines, in Panama and elsewhere. The whole of Serbia was divided into fourteen sanitary districts, seven of which were intrusted to Americans. One of the most efficacious measures was the disinfection of the population by means of a special train carrying baths, an immense disinfecter for clothing, and ears fitted up as dressing rooms and for shaving and hair-cutting.

"By this train system hundreds of persons would have their clothing disinfected and washed in a few minutes. Thousands were reached daily in this manner, the train proceeding from station to station as fast as the

work could be done, the houses in each place visited being disinfected at the same time. All those found affected with typhus were taken to hospitals.

"The entire Serbian army and numbers of the people have been vaccinated against cholera and typhus, the vaccine being manufactured for the most part in the American Red Cross laboratory. By August last virtually all the epidemics that had been raging in the country were suppressed, and the spread of typhus in Montenegro had been prevented by adopting energetic sanitary measures."

It is expected that the majority of American physicians who have been engaged in Red Cross work in Serbia will leave that country on October 10.

RELIEF WORK OF ROCKEFELLER COMMISSION.—The second part of the annual report of the Rockefeller Foundation issued in New York on September 25, describes the work of the Rockefeller War Relief Commission in Europe from August 14, 1914, to January 1, 1915:—

"The commission expended for Belgian relief \$1,185,146.46 and later received refunds for expenses of ships and for the cargo of the steamer *Massapequa* from the commission for relief in Belgium, \$199,107.52, making the net amount expended by the Foundation in this phase of its work, \$986,038.94. This sum purchased more than 27,000,000 pounds of flour, more than 2,000,000 pounds of rice, 2,000,000 pounds of bacon and large amounts of coffee, lard, salt, sugar, milk and new and old clothing. In addition to purchasing food, the Foundation acted for several months as the receiver for clothing for Belgium, establishing a temporary office in New York for that purpose.

"Within two weeks after the outbreak of the war the Foundation appropriated money to enable Dr. Alexis Carrel, of the Rockefeller Institute and attached to the French army medical corps, to purchase anti-menengitis serum and anti-dysentery serum as well as setting aside funds for the use of the American Red Cross in sending physicians and nurses to Europe.

"In addition to its work for the Belgians, the Foundation sent a commission of three to Europe to inquire into relief measures needed in all the countries affected by the war. This commission was composed of Wickliffe Rose, director-general of the International Health Commission; Ernest P. Bicknell, National Director of the American Red Cross; and Henry James, Jr., manager of the Rockefeller Institute for Medical Research. They visited Belgium and Holland and made a survey of the organizations for relief in those countries. The commissioners later went to Poland and Serbia and by January 1 their recommendations as to relief measures by the Foundation had been presented to the trustees for consideration.

"Another feature of the Foundation's work was an appropriation at the rate of \$20,000 a

year for those professors of scientific subjects in the University of Louvain who had been obliged to abandon their laboratories and who had been provided with opportunities of pursuing their labors in England."

WAR RELIEF FUNDS.—On Oct. 2 the totals of the principal New England relief funds for the European War reached the following amounts:

French Fund	\$17,534.18
Italian Fund	8,114.57
Red Cross Fund	1,481.61

BOSTON AND NEW ENGLAND.

WATER SUPPLY OF FALL RIVER.—The conservation of the water supply of Fall River has at last become necessary and measures are to be taken to prevent the pollution of the reservoir upon which the city is dependent for its water. Watuppa Pond, once the largest pond in the state, is now divided into two parts and the south pond has been taken for manufacturing purposes; the various mills on its banks rendering it unfit for drinking purposes. The north pond, therefore constitutes the only source of water in the peninsula in which the city is situated. The growth of population has approached the pond so closely that its pollution is imminent. To prevent this the number of brooks and streams feeding the pond will be diverted into the south pond and the forestry zone will be well protected. That the preservation of this reservoir can be accomplished is said to be easily possible at this time, although as early as 1875 the likelihood of city growth into the watershed to the injury of the water supply was discussed and the project of an intercepting drain was broached.

REGULATION FOR FOOD WRAPPERS.—Dr. F. X. Mahoney, health commissioner of Boston, has recently issued a notice to storekeepers directing that newspapers may not be used for the purpose of wrapping any article of food. This regulation represents an interpretation of the statute which prohibits the use of unclean paper for the wrapping of food stuffs.

HOSPITAL BEQUESTS.—The will of the late Isaac H. Eddy of Dorchester, Mass., which was filed on September 22 in the Suffolk Probate Court contains a bequest of \$10,000 to the Massachusetts Homeopathic Hospital and \$5,000 each to the Home for Incurables, the Boston Floating Hospital and the Industrial School for Crippled and Deformed Children.

The will of the late Dr. George Haseltine of Haverhill, Mass., who died recently in New Jersey, contains a bequest of \$5,000 to the Hale Hospital at Haverhill.

REGISTRATION OF BIRTHS.—The department of health of the city of Boston has recently issued the following circular letter to every member of the profession in this city:—

"Your attention is called to the following:
'An Act Relative to Reports and Records of Births.'

(Acts of 1912, Chapter 280.)

Section 1. Physicians and midwives shall within forty-eight hours after the birth of every child in cases of which they were in charge, mail or deliver to the clerk or the registrar of the city or town in which the birth occurred a notice stating the date and place of birth, giving the street number, if any, the number of the ward in a city and the family name. Failure to mail or deliver the said notice shall be punished by a fine not exceeding twenty-five dollars for each offense."

"The reason for calling your attention to this law is that you may have all births which you have attended to date reported to the City Registrar of Boston, as after October 1, 1915, if any birth is found not reported in accordance with the above statute, the physician in charge will be prosecuted.

"Respectfully yours,

"FRANCIS X. MAHONEY, *Health Comm.*
E. W. McGLENEN, *City Registrar.*"

Obituary.

AUSTIN FLINT, M.D.

DR. AUSTIN FLINT, the distinguished New York alienist, physiologist and consultant, who died in that city of cerebral hemorrhage on September 22, 1915, was born on March 28, 1836, in Northampton, Mass., the son of the distinguished physician of the same name. After being for a time in Harvard College he withdrew to undertake the study of engineering, but soon turned his attention to medicine and in 1854 attended the medical school of the University of Louisville. Later he went to the Jefferson Medical College at Philadelphia, from which he received the degree of M.D. in 1857. Upon his graduation he presented an address on "The Phenomena of Capillary Circulation," which early showed his ability as a physician and a writer.

For several years Dr. Flint practiced his profession at Buffalo, where he became editor of the *Buffalo Medical Journal*, which had been founded by his father. At this time also he received appointments as professor of physiology in Buffalo University and visiting surgeon to the Buffalo General Hospital. In 1859 he removed to New York, where he settled in practice with his father, and was made professor of physiology at the New York Medical College. The following year he was appointed to the same profes-

sorship in the New Orleans School of Medicine. Returning to New York in 1861, Dr. Flint became one of the founders of the Bellevue Hospital Medical College, in which he served as professor of physiology from 1851 to 1898. He was also professor of physiology at the Long Island College Hospital Medical School from 1865 to 1868 and at the Cornell University Medical College from 1898 to 1906.

At the outbreak of the Civil War, Dr. Flint volunteered for service in a surgical capacity and throughout the war served as assistant surgeon U.S.A. at the New York General Hospital. In 1875 the value of this war experience of Dr. Flint was recognized by his appointment as surgeon-general of New York, a position which he held for four years. In 1891 he was decorated with the third class of the Order of Bolívar, Venezuela. He served for varying periods as visiting physician and consulting physician at the Bellevue Hospital and at the Manhattan State Hospital for the Insane.

It was through his lifelong interest in physiology that Dr. Flint was led to his particular studies in psychology and mental diseases. As early as 1863 he conducted experiments on alligators and other animals for the purpose of investigating the functions of the liver, the phenomena of circulation, especially the inhibitory action of the vagus, and the recurrent sensibility of the anterior roots of the spinal nerves. He also studied methods of determining the nitrogenous content of the blood. He was a prolific author on medical subjects, his most notable works being his several text-books on physiology and a monograph on "Source of Muscular Power." He was a member of the American Medical Association, the American Academy of Medicine, the American Philosophical Association, the American Medico-Psychological Association, the Association of Military Surgeons, and of his state, county and local medical societies. His life and work are noteworthy examples of the contributions of a distinguished American medical family. He is survived by his widow, one daughter and three sons, one of whom, his namesake, is also a physician.

JOHN EVANS SHEPARD, M.D.

DR. JOHN EVANS SHEPARD of Brooklyn, N.Y., who died on September 13 at Putnam, Conn., was born of a Quaker family at Woodland Farm, Greenwich, Cumberland County, N.J., in 1859. He graduated from Haverford College in 1879 and in 1882 received the degree of M.D. from the University of Pennsylvania. After serving as interne in the Pennsylvania and University Hospitals of Philadelphia, he began the practice of his profession at Atlantic City, N.J., where he was attending physician at the Mercer Memorial Home and at the Seashore Annex of the Friend's Insane Asylum of Frankford, Pennsylvania. In

1889 he removed to Brooklyn, where he became professor of otology at the New York Polyclinic and at the Long Island College Hospital, consulting aurist at the Brooklyn Hospital, the Jewish Hospital, St. Catherine's Hospital, and the Brooklyn Eye and Ear Hospital, instructor in otology at the New York Postgraduate Hospital and Auricular Surgeon at the Brooklyn Throat Hospital. He was a prolific author of papers in otology and laryngology and was a member of many general and special medical societies. He is survived by his widow and one daughter.

JOHN MERRICK BEMIS, M.D.

DR. JOHN MERRICK BEMIS, who died at Worcester, Mass., on September 22, was born in that city in 1860, the son of a physician. After obtaining his preparatory education at Andover Academy, he graduated from the University of Vermont and obtained the degree of M.D. from that University in 1883. He then became associated with his father, the late Dr. Merrick Bemis, in the administration of the Herbert Hall Hospital of Worcester, where he became noted for his work as a neurologist. He was a Fellow of the Massachusetts Medical Society and a member of the New England Society of Psychiatry and the American Psychological Society.

Miscellany.

THE WELSH NATIONAL SCHOOL OF MEDICINE.

In the issue of the JOURNAL for August 26 we noted the establishment of a national medical school in conjunction with the University of Wales. The corner stone of the first building of the physiological department of this school was laid at Cardiff on August 12 by Lord Pontypridd. This new Welsh National School of Medicine had its origin in the school of medicine of the University of South Wales and Monmouthshire, which was established in 1893. As early as 1885 at the time of the annual meeting of the British Medical Association at Cardiff in that year, Dr. W. T. Edward, then president of the Association and physician to the Cardiff Infirmary, who had long cherished a desire for the establishment of a Welsh medical school, gave the sum of £1,000 for the foundation of such a school. In 1893 a further sum of £7,000 was raised for alterations and extensions of the original buildings of the school at Cardiff, and in 1894 these extended buildings were opened by Sir Richard Quain, then president of the general medical council. Since his time, instruction has been provided at this school in the subjects of the first three years of medical study, and since 1899 graduate courses have been offered to-

wards the degree of doctor of public health. In the issue of the *British Medical Journal* for August 21, 1915, is presented the following further sketch of the history of this Welsh school of medicine and of the new institution by which it is to be extended and replaced.

"The first professor of anatomy was Dr. Alfred Hughes, who died during the Boer war after serving in South Africa. His memory is perpetuated in the school by a medal and by a fine anatomical museum. He was succeeded by Professor Dixon, now of Dublin, and the present occupant of the chair is Dr. Hepburn, now in command of the 3rd Western General Hospital at Cardiff. During this time Dr. Berry Haycraft has been continuously professor of physiology. During the twenty-two years 224 former students have obtained medical qualifications and have won 32 gold medals and distinctions at the University of London. They have also won 45 entrance scholarships into London hospitals.

"The council of the college has worked in cordial relation with the authorities of King Edward VII Hospital. The professor of pathology and bacteriology of the college is one of the honorary pathologists of the hospital, and is now commanding officer of the mobile bacteriological laboratory of the Welsh Army Corps; and all the work of the school in pathology and bacteriology, which has hitherto necessarily been of a post-graduate character, is done at the hospital, where the necessary rooms and laboratories have been provided by the foresight of the hospital authorities for that purpose. The department was opened by Sir William James Thomas on June 1, 1912.

"Since 1909 the college has received a grant from the Treasury for the purposes of the medical school. In 1906 the University of Wales obtained a supplemental charter authorizing it to confer degrees in medicine and surgery, but owing to the want of a complete medical school at Cardiff, students have hitherto had to go to other schools for the later subjects of the medical curriculum. In 1908 Professor Haycraft drew attention to the need for new physiological laboratories, both for teaching and research, and three years later, at the instance of Colonel Bruce Vaughan, chairman of the House Committee of the Cardiff Infirmary, a committee of the council of the college was appointed to consider the needs of the department of physiology and the comparative claims of other departments. This committee recommended that greatly improved accommodation for the medical school was required. Eventually, in February, 1913, Sir William James Thomas offered a sum of over £10,000 towards the cost of building the new department of physiology, and in the end undertook to erect the whole of the buildings required for physiology and to increase his donation to £20,000 so that the great hall and staircase for the use of the complete school

of medicine should be provided at the same time. In January, 1914, Sir William James Thomas announced that he was prepared to promise a further sum of £60,000 to provide a public health department and school of preventive medicine, together with the necessary buildings for a complete school. One of the conditions attached to the offer was that the Treasury, in addition to its present annual grant of £1,500, should make a grant adequate for the administration and maintenance of a school worthy of Wales. In February, 1914, a deputation consisting of members of the University of Wales and its constituent colleges and of other bodies interested in medical education in Wales, appealed to the then Chancellor of the Exchequer, Mr. Lloyd George, for government assistance towards the maintenance of a complete medical school for Wales at Cardiff. Mr. Lloyd George promised a substantial contribution from the Government, and a scheme has recently been submitted to the Treasury by the Welsh Educational Conference for the formation of a University of Wales Council of Medicine. The school will thus become a national institution controlled by a national body, while its administration will, subject to certain conditions, remain in the hands of the Council of the University College of South Wales and Monmouthshire.

"The new physiological buildings, with the great hall and staircase, now to be erected, form the first part of the larger scheme for the complete school of medicine. The new building will face onto the Newport Road, one of the principal thoroughfares of the city, and will be within five minutes' walk of the hospital. When completed it will measure 368 ft. from east to west. The physiological department will occupy 116 ft. of its frontage, and the hall, which will be common to all departments of the new school, 42 ft. The design, by Colonel E. M. Bruce Vaughan, F.R.I.B.A., provides a basement, a ground floor, four upper floors, and a mezzanine between the first and second floors. It will have a depth of 47 ft.

"The eastern part of the basement and ground floor will be occupied by a large lecture theatre to seat 140 students; adjacent to it will be preparation rooms and a museum. The first floor, to be devoted to experimental physiology, will contain large laboratories for forty-eight students, a smaller laboratory for advanced students, the professor's private room and private laboratory, a dark room, a departmental library, and a workshop. The second floor for chemical physiology will contain a students' laboratory with eight benches for five students each, a lecture room for small classes, a research laboratory, a private room and a research laboratory for the lecturer in chemical physiology and store and preparation rooms. The third floor will be entirely devoted to histology and embryology. The laboratory with both top and side light will provide accommodation for 80

students, and there will also be a lecture room, a demonstration theatre, a room for the lecturer, a laboratory for advanced students, a museum for embryological and histological specimens, and preparation and store rooms. Above the third floor there will be a photographic dark room and an optical room.

"In the design of the front the need for abundance of light has been fully recognized, and the façade shows many windows. The centre and end blocks and the wide bays between are stone. The main walls will be faced with narrow red bricks joined with light mortar. The general design is English Gothic of the fourteenth century, modified by the influence of the French Renaissance architecture of the following century. The central block rises to a height of 100 ft. with side turrets, between which will be a pointed arch deeply recessed. The lower portion of the central feature, forming the portico, will be divided into three bays by columns surmounted by canopied niches to contain the statues of Hippocrates and Aesculapins. The flanking panels will contain busts of Pasteur, Lister, Hunter, and Jenner. Over the central block will be a lantern with a vane rising to a height of 150 ft. above the ground. The entrance hall will measure 65 ft. by 30 ft. and the ceilings will be panelled, showing the arms of each county in the Principality with the arms of Wales in the centre."

A NEW ANTISEPTIC.

IN a recent issue of the JOURNAL we announced the reported discovery by Dr. Carrel and others of the efficacy of a mixture of boric acid and chlorinated lime as an antiseptic in wounds. It is pointed out in the issue of the *Lancet* for August 14 that this is not a new discovery, but a method of applying the already recognized and well known antiseptic properties of hypochlorous acid.

"It is a good many years since we announced from the *Lancet* laboratory that the activity of ordinary bleaching powder was greatly increased by passing through it carbonic acid gas, which liberates hypochlorous acid. Any other acid—e.g., boric acid—will do the same thing. In 1894 we investigated the Hermite process for the sterilization of sewage, which consisted in passing a current of electricity through sea-water, which was demonstrated to produce hypochlorous acid. The germicidal power of this electrolytic fluid was shown to be more than equal to corrosive sublimate; it was found to possess the advantage that it did not become inert by forming insoluble compounds with albumins, while it could be very cheaply produced. We pointed out at the same time that a practically identical fluid, except for an excess of common salt, could be produced by passing carbonic acid gas through a solution of bleaching powder. Later it was found that by adding bicarbonate

of soda in excess to bleaching powder solution a fluid was obtained containing free hypochlorous acid, although the product possessed acid-neutralizing properties due to the excess of bicarbonate of soda present. In all these cases, therefore, the 'new antiseptic' is an old and familiar friend, hypochlorous acid. It is doubtful whether bleaching powder or really neutral calcium hypochlorite has a strong germicidal value. It is not until its hypochlorous acid is set free that it becomes a powerful antiseptic, and in the methods just described certain additions are made to the bleaching powder—e.g. bicarbonate of soda or boric acid—which effect the liberation of this weak and unstable acid. When bicarbonate of soda is used the advantage is gained that all free and corrosive alkali is removed, and yet the mixture possesses acid-neutralizing properties. The bleaching properties of such a mixture are very intense, and this intensity is no doubt on a par with its germicidal power. It is well known that one of the difficulties of using bleaching powder for bleaching purposes is that its caustic properties due to lime are apt to destroy the fabric. When, however, it is employed with an excess of bicarbonate of soda a bland, non-corrosive fluid results which, while equally effective as a bleach, is free from the destructive properties described. 'A new antiseptic' therefore amounts to this: that bleaching powder or sodium hypochlorite has been primarily employed, but that the lime or soda has been neutralized by the addition of boric acid, which would liberate hypochlorous acid, which possesses only a feeble acid character. It can hardly be supposed that the boric acid contributes to the antiseptic value, since it would be present as borate of lime or of soda, as the case may be; its addition merely means the liberation of hypochlorous acid. Most probably the addition of an excess of bicarbonate of soda to bleaching powder solution would give equally gratifying results in the antiseptic treatment of wounds. Some valuable experimental observations on the antiseptic action of hypochlorous acid and its application to wound treatment were recorded in the *British Medical Journal* on July 24. The observations, undertaken at the request of the Medical Research Committee, were made by Professor Lorrain Smith, Professor Murray Drennan, Dr. Theodore Rettie, and Dr. William Campbell, and the result was to confirm the conclusion of various investigators that hypochlorous acid is the most powerful antiseptic known."

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Sept. 28, 1915, are as follows: Diphtheria, 41, of which 4 were non-resident; scarlatina, 17, of which 4 were non-resident; typhoid fever, 19; measles, 7; tuberculosis 67, of which 3 were non-resident. The death rate of the reported deaths for the week was 14.33.

Correspondence.

RELIEF OF DEAFNESS AND APoplexy.

BOSTON, Sept. 26, 1915.

Mr. Editor: I have just read your editorial upon Dr. Lawrence and S. Johnson. In writing about the fallacy of "broken ear drums" I found that Sir Wm. Wilde, in 1852, quoted Sir Astley Cooper (1800) as having entirely removed that fallacy! Now, in 1915, it occurs to me to note that very few physicians could correctly diagnose the cases of those of whom you have written. And even if these few could do so their statements would not be credited. However, by reaching the fountain head, it is possible to change the river's course and I venture to show you a modern method of relief from "deafness and apoplexy." In all cases of continued progressive deafness it is usual to find evidences of the effects of disease in childhood. These are opacities or scars in the m. t. These always hint at a "chronic retropharyngitis" with hypertrophied Luschka's tonsil.

Although in a few cases where hypertrophy continues late in life the patient may carry around all the germs that "flesh is heir to" upon the sticky mucus of that region, as these cannot penetrate the surface under ordinary conditions health continues. In most patients, sooner or later, the coccyx of rheumatism begins developing and a slow toxization ensues to produce from time to time the "endarteritis deformans," or the "sclerosis which precedes the apoplexies." Sometimes it is "thrombosis," at other times "embolism," and sometimes "rupture of sclerosed artery." With the local infecting processes are found all the complications which produce the "old man's bronchitis," the "clergyman's sore throat," the symptoms becoming local or reflex, or both, according to the varying character of the lesions.

In so-called heart asthma one often finds this due to an inhibitory reflex through the nose; specifically, irritation by swelling in the region of the sphenopalatine ganglia. This interesting symptom occurs during many of the normal nasal reflex phenomena, sneezing, coughing, hiccup, etc. Recall what takes place when one's nose is covered by another's hand! A struggle immediately occurs to remove the inhibiting object. Imagine what an obstructed nose can do to induce the various phenomena or symptoms of asthma. In this connection I remember what part the so-called respiratory centre plays in these.

It is, perhaps, needless to write of the treatment because it would not be possible to carry this out in the very aged to the extent required by the local conditions. It is, however, easy to attempt sterilization of the nasopharynx by passing through the nose cotton-tipped probes dipped in hydrogen peroxide and whenever the kidneys are not seriously affected this should always be advocated.

I am very anxious to have some one carry out this procedure during an apneptic seizure—either immediately or during convalescence, for if fluid can be absorbed from inflamed knee-joints in a few hours, as both Dr. Bryant and I have seen, after a sterilization of the nasopharynx, why should not similar processes take place elsewhere, as in the brain?

Very truly yours,

EDWARD D. SPEAR, M.D.

VALUE OF QUININE AS AN ANTISEPTIC.

BROOKLYN, N. Y., Sept. 22, 1915.

Mr. Editor: In the N. Y. *Daily Times* of Sept. 22, 1915, there appeared an article indicating the value of Quinine as an Antiseptic and Cure of Gas Gangrene, the most infections, rapid and fatal of diseases.

I wish simply to say that for the last 15 or 20 years past I have used quinine as an antiseptic in all labor cases in my practice and have not lost a single case. I have given it a week before confinement and after, until I leave the case, a 3-gr. quinine pill three times

a day, and have proven it the best antiseptic in my practice.

Yours very respectfully,

MARSHALL L. BROWN, M.D.

531 East 23d Street.

SOCIETY NOTICE.

MASSACHUSETTS SOCIETY OF EXAMINING PHYSICIANS.—Meeting at Boston Art Club, Oct. 8, 1915, 8 p.m.

1. Dr. J. E. Goldthwait, Boston, "Industrial Disabilities That Can be Relieved by Orthopaedic Measures."

2. Magnus Alexander, General Electric Company, "Corporations and the Injured."

3. Dr. W. Quincy Clark, Worcester, "What One Corporation Does for Its Injured."

4. Dr. Francis D. Donoghue, Boston, "What Germany Does for Its Crippled."

JAMES H. STEVENS, M.D., *Secretary.*

NOTICE.

Members of the medical profession are invited to attend the Ether Day address by Dr. William Williams Keen, subject, "The Dangers of Ether as an Anesthetic," on October 16, 1915, at 4 p.m., to be held in the lower out-patient amphitheatre on Fruit Street, Massachusetts General Hospital.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING SEPT. 25, 1915.

CONTRIBUTIONS.

The Norfolk County Medical Society, Norfolk, Va.	\$28.00
Carroll County Medical Society, Wolfeboro, N. H.	10.00
Muscogeee County Medical Society, Columbus, Ga.	14.00

Receipts for the week ending Sept. 25.....	\$ 52.00
Previously reported receipts.....	7514.84

Total receipts	7866.84
Total disbursements	7310.04

Balance	556.80
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F. F. SIMPSON, M.D., *Treasurer,*
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE WEEK ENDING SEPT. 25, 1915.

Sept. 21. Surgeon W. B. Grove, detached, *Arkansas* to home, wait orders.

Surgeon J. C. Pryor, detached, *North Dakota*, to *Arkansas*.

P. A. Surgeon P. S. Bossiter, detached, *San Diego* to *Colorado*.

P. A. Surgeon H. W. Cole, detached, *Colorado* to *San Diego*.

Asst. Surgeon C. I. Wood, detached, *Colorado* to *San Diego*.

The following Asst. Surgeons M.R.C., have been ordered to Naval Medical School, Washington, D. C., for course of instruction:

R. H. Lhamon, G. R. Shields, G. R. Taylor, F. C. A. Gibbs, John Harper, R. H. Miller, G. C. Wilson, R. J. Trout, W. A. Vogelsang, H. C. Weber, G. W. Taylor, W. J. Rogers, V. H. Garson, E. M. Gendreau, F. M. Harrison, J. P. Owen.

The Boston Medical and Surgical Journal

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Original Articles.

ANALYSIS OF 308 CASES OF TYPHOID FEVER IN CHILDREN, WITH STATISTICAL LITERATURE.*

By K. G. PERCY, M.D., BOSTON.

[From the Medical Department of the Children's Hospital of Boston.]

I WISH to present the analysis of 308 cases of typhoid fever which have been treated in the Children's Hospital of Boston since 1913. This series embraces children from infancy through the twelfth year. Two cases of thirteen are included as twelve, for both had been surgical or orthopedic cases, which showed signs of typhoid soon after their admission or operation.

In compiling these statistics I have procured my percentages from the total number of records which mentioned the point desired and will not bother you continually in giving each time the number of cases in each series.

Age incidence shows statistically 5 cases, or 1.6%, under 2 years; 95, cases, or 31.6%, between 2-5 years; 200 cases, or 66%, between 6-12 years. In the literature of 4717 cases (9, 2, 6, 10, 3, 8, 11) there are 2.2% under two years, 27.8% between 2-5 years, 66% between 6-12 years.

Seasonal Occurrence is but a matter of textbook interest and my statistics show that 51%

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were admitted during the months of August, September and October; 11% more were admitted in November. This coincides with 76% given by Adams¹ for July, August, September and October. Yet the appearance of local epidemics in April and May in two years raised their frequency during these months to 13%.

The Type of Onset was noted but seldom, though in general the younger the child, the more sudden the onset, definite sickness occurring over night or during the day. The older children give an indefinite history of malaise for one to seven days before chilliness, fever, headache, epistaxis or diarrhea occurred. Blackader² gives onset as sudden in 13%. Griffith³, in infants, gives onset as sudden in 35%, rapid in 27%, gradual in 37%.

The Duration of Sickness before Entrance was noted in 268 cases, showing 35.4% under 1 week, 46.2% 1-2 weeks, 13% 2-3 weeks, 2.7% 3-4 weeks, 2.9% over 4 weeks. In other words, 82% of all cases were so sick that the parents felt that their children needed hospital care or the local doctor had made a tentative or positive diagnosis of typhoid before the children had been sick for 2 weeks.

Fever was noted in the histories in 82% of this series. This, I believe, is incorrect observation of parents or negligence of the admitting physician, for Walker⁴ gives 100%, Hand and Gillings 100%, of history of fever. Yet on admission 100% of this series had fever.

Headache was a marked symptom in 57%, and in the children over 4 years old it was noted in 69%. In the literature of 1210 cases (11, 2, 6, 9, 9, 8), headache is noted in 66%.

* Read before a meeting of the New England Pediatric Association on February 24, 1915.

Malaise I find noted in but 38% of all cases, though this surely would reach almost the same height as fever in carefully taken histories.

Vomiting occurred as a definite symptom in 26% of this series, beginning in the early stages and often persisting for 3 to 10 days, then generally abating after 48 hours. In the hospital wards, mention is made of it in but 10 histories, or 3%, and of this number 3 were under two years. In the literature of 985 cases (9, 2, 6, 7, 11, 8, 12) vomiting occurred in 29%. Thus, as in many acute infections and contagious diseases of childhood, vomiting is noted in typhoid, a very common symptom, and I can find it has no special relation to the condition of the bowels.

Abdominal Pain is a very interesting and quite a common symptom of this disease in childhood. It varies in intensity, from a mild indefinite discomfort to such pain and tenderness that its severity led the local doctor to send in three of our cases for appendicitis. It appears quite constantly with those cases having diarrhea, though a normally active or lethargic intestinal tract may have the same pain as well. In this series 25% of all cases gave a history of abdominal pain. In the literature of 909 cases (9, 2, 6, 11, 5, 12), 29% had abdominal pain.

Diarrhea in the works of the old authors was considered a *sine qua non* of typhoid, but statistics definitely deny this statement. In this series, it is mentioned but 62 times, or 21%; and in over 40% of these cases this symptom lasted only 4-10 days, and during their stay in the hospital, during early fever, fastigium or relapses, any looseness over two stools a day is recorded in but 16% of the series, and in but 2% was it at all a marked symptom. In the literature of 1739 cases (9, 2, 6, 7, 11, 1, 5, 12) diarrhea is noted in 41%.

Anorexia, to my mind, is like malaise, a condition that generally is a necessary associate of malaise and fever, and consequently in acute sickness is not thought of by the parents as of sufficient importance to mention to the doctor. Thus probably my low figures of 19%. Hand and Gillings⁶ noted it in 78% of their series.

Nosebleed occurred in 17% of this series, and of these 78% within the first week of the disease. In the literature of 1060 cases (9, 6, 7, 7, 11, 5, 12) it appears in 23% of all cases.

Delirium I find mentioned in 8% of 300 cases, where the literature of 1062 cases (9, 6, 1, 12) gives 9.5%.

Chills or *Chilliness* were occasionally mentioned. In type, they were never characteristic of a malarial chill but universally were a symptom that was of minor importance in the parents' mind. This series shows an incidence of 6.8%, where I find in the literature of 1162 cases (9, 2, 6, 1, 12) it occurs in 8.6%.

Constipation was a very common symptom, but as this symptom so often is nothing unusual for a patient occasionally, even in health, I have taken no statistics. In the literature I find it noted in 40% of 710 cases (9, 6, 7, 11).

Cough I find in children less frequent an initial symptom than in adults. When present in this series, it has shown a more severe toxemia of the disease, as characterized by bronchitis, capillary bronchitis or broncho-pneumonia. In this series of 300 cases it is noted in 8%, where Adams in 546 cases noted it in 5% and Griffith in 75 infants in 24%.

Of the various other symptoms, deafness, aphasia, vertigo, convulsions, rash, general bone or deep-seated pain and nausea, I will here but make this casual mention.

Etiological History. Of all the satisfactory histories, I obtained a record of positive family history in 66, or 23.7%, while 76.6% gave no known contagion. In the literature of 900 cases (1, 5, 12) it is noted in 18%.

Fever. In giving statistics of admission temperature, it is well to remember that the cases came in from their 4th day of illness to their 35th day, but as stated before, 82% of these cases were admitted in their first two weeks and a total of 95% in their first three weeks, and this puts almost all cases well within the febrile stage.

.6%	were admitted with fever of 106° or over.
7. %	" " " " 105°
26.4%	" " " " 104°
29.6%	" " " " 103°
20.7%	" " " " 102°
9.4%	" " " " 101°
6.5%	" " " " 100° or under

In the literature of 823 cases (9, 2, 6, 11),

3.6%	had temperature above 106°
23.2%	" " " 105°
34.2%	" " " 104°
18.6%	" " " 103°
12.5%	" " " 102°
4. %	" " " 101° or under.

Duration of Fever. In this study I have taken as the total duration of sickness the period from the beginning of the febrile stage to the end of the fever, when the temperature curve first ran a morning and evening course below normal or at the apparent normal of the individual patient. In 293 cases fever lasted:

Under	1 week in	1%
Between 1-2 weeks in	9%	
2-3 "	29%	
3-4 "	32%	
4-5 "	17%	
5-6 "	6%	
Over 6 "	3.7%	

Of these having less than a 1-week course of fever, two died within 24 hours of admission, and the third is tabulated under a real paratyphoid diagnosis. The shortest course was 6 days, the largest 67 days, and the average was 27 days. In the literature of 674 cases (9, 11, 8), I find the average 25 days, while Griffith says that of his 75 infants,

18% had fever over 3 weeks.
81% had fever less than 3 weeks
or 35% had fever less than 2 weeks.

The Spleen showed enlargement to palpation on entrance in 68% of cases and was noted as enlarged to palpation in 79% of all cases some time during their stay in the hospital. The figures given in the literature of 1356 cases (9, 2, 6, 7, 11, 1) show enlargement of the spleen in 70%.

Rose Spots were noted 94 times in 280 careful records, or 33%, at entrance and a total of 57% some time during the course of the disease. Recurrent crops appeared with relapses or even recrudescence of fever, and have the same significance in children, after the temperature curve has once struck normal, as in adult practice. Of the cases reported in the literature, I find their frequency put at 61% in 2372 cases (9, 2, 6, 7, 11, 1, 5).

Widal's Tests were done on 280 of this series. If positive once, that was sufficient. If negative, they were repeated one to four times, until positive or other evidence found for diagnosis.

80% were positive on admission.
13.2% more were positive during their stay.
7.8% were negative.

Outside of this list I have five positive to one of the paratyphoid reactions, thus 93.2% of all typhoid cases in this series gave a positive Widal reaction during their course, and this laboratory work was done in our own laboratory, in the City Board of Health Laboratory and at the Harvard Medical School. In the literature I find 88% of 447 cases gave positive Widals.

Let me here review the cases with negative Widals,—16 in all. Of these

- 3 gave history of typhoid in family and ran a typical course.
- 4 had both rose spots and spleens and ran a typical course.
- 4 had enlarged spleens and ran a typical course.
- 1 had rose spots and ran a typical course.

The last 4 I have questioned as real typhoid cases.

- 2 had splenic enlargement and ran a fever less than 3 weeks.
- 1 had questionable rose spots and ran fever for 2 weeks.
- 1 had typhoidal history but ran fever for 10 days only.

Probably these 4 would have shown positive paratyphoid agglutinations had they been tried. Of the *Paratyphoid* cases there were five proven by the agglutination reaction.

Spleens were noted in 2 or 40%
Rose spots were noted in 1 or 20%
No complications.

An average duration of fever of 16 days and
An average stay in the Hospital of 25 days.

White Blood Cell Count was done in 258 cases at or within 3 days of admission.

14% were below 5,000
57% were between 5-10,000
29% were between 10-15,000.
Though 25.6% were in the 10,000 count.

Hand and Gillings⁶ in 111 cases note that

81% were under 5,000
64% between 5 and 10,000; and
27.7% between 11 and 15,000.

Griffith, in 75 infants, reports that the white count was not over 10,000 in 84% of his series.

In the Urinary Examinations I have simply collected, as a matter of interest, statistics in 76 cases where Diazo reactions were done. Fifty-one cases, or 67%, either at entrance or within the first 10 days, were positive. The figures of Adams and Walker (1, 9) in 182 cases show that they found the Diazo reaction positive in 24.8%.

Blood Cultures were done in 17 cases only of this series. Twelve cases, or 70%, were positive. Of the five negatives, three were taken on the 10th day and the Widal on that day was positive; one taken on the 4th day with a coincident positive Widal, and one taken on the 11th day with a coincident positive Widal. Of course this series is too small for correct deductions, but these results are to me quite surprising.

Bowels Activity. During the hospital course 299 cases showed:

Constipation in	52 % of all cases
Diarrhea in	16.7% of all cases
Normal activity in	37 % of all cases

Walker⁹ reports in his 71 cases,

42%	showed constipation.
38%	showed diarrhea.

Relapses occurred in 60 cases of 300 records where the patients stayed in the hospital until discharged well, or in 18% of this series. Five cases had two relapses. The literature of 1002 cases (9, 11, 2, 5, 1) shows relapses in 10% of cases. Thirteen of the relapses in our series were coincident with increase in diet, 3 with giving of cathartics (A. S.+B. pills or castor oil), 2 probably with getting up too soon, and the rest were unaccounted for.

17 %	occurred between the 10-20th day of sickness
	(This seems questionable.)
49.2%	occurred between the 20-30th day of sickness
17 %	" " " 30-40th " "
13 %	" " " 40-50th " "
3 %	" " " 50-60th " "

Of 59 of these where the duration was noted,

18.6%	lasted 7 days or less.
10.2%	lasted 7-10 days.
25 %	lasted 10-15 days.
30.4%	lasted 10-20 days, and
16 %	lasted over 20 days, with an average of 13 days.

Griffith noted relapses in 15 infants of his 75, with a duration ranging from 5-19 days.

Hemorrhages of the intestines occurred in 4 cases, one of whom died and another of whom had as its apparent etiology a severe purpura with hematuria. Thus this series shows that hemorrhages occurred in 1.3% of all typhoid cases. In the literature I find 4.4% of hemorrhages in 4691 cases (9, 6, 7, 5, 3, 11, 8, 1), as against Holt's¹² figures of 3% in 946 cases. The hemorrhages in this series are all noticeable on

the chart by rise in pulse and temperature, and in three cases with a rise in respiration. They were all noted clinically at or soon after their onset, before the appearance of tarry or bloody stools and were treated by starvation, morphine and cold locally to the bowel in 3 cases.

Perforation of the bowel does not enter our series, though the literature of 2788 cases (4, 6, 7, 11, 8, 1, 13) shows an incidence of 1.8%, as against Holt's¹² figures of 1.1% in 1028 cases.

Complications were noted in 102 cases, or one-third of this series. In this series I have included otitis media, which appeared 51 times. Of those having otitis, 78% were 4 years or under, and justly this cannot be classed as a typical typhoidal complication in our knowledge of its frequency in debilitated children in hospital wards. Thus without otitis we have complications in 51 cases, or 16% of this series. Yet, further, I had included bronchitis as a complication. It surely is to me a more serious complication than otitis and often seems to have a very definite relation to typhoid, yet without this complication and otitis, our percentage of cases having complications fall to 9%. G. Andreoli¹³ in the *Thise de Paris*, 1913, No. 430, gives the percentage of complications in 1295 cases as 10.6%. Of our series 50% had otitis (and only 1 mastoid), 24% had bronchitis, 13% boils or superficial skin infections, 5% meningismus, 3% pneumonia, 3% parotitis, 3% abscesses, 2% jaundice, nephritis, purpura and osteomyelitis, 1% intestinal hemorrhages and pyelitis, and single cases with phlebitis, meningitis, cholecystitis, empyema (not typhoidal), psychosis, deafness, noma and colitis.

On the question of *typhoidal insanity* in childhood, I wish to quote D. L. Edsall's¹⁴ statistics of the literature of 89 cases, where 63 recovered, 33 remained insane, though 43 died during the course of typhoid.

The average length of stay in the hospital for 300 cases that remained until convalescence or death was 5 1/3 weeks, or in other figures, 73% left before the 42nd day.

Mortality. This series shows a mortality of 2.9% in 306 cases. (Two cases which were discharged against advice are excluded.) In other words, 9 died.

1. 10 years old on 36th day from toxemia and in relapse.
2. 13 years old on 46th day from toxemia and sa-premia following a surgical operation previous to first symptom of typhoid.
3. 5 years old on 23d day from int. hemorrhage and noma with coincident measles.
4. 6 years old on 7th day from toxemia (living 12 hours after entering hospital).
5. 3 years old on 6th day from toxemia.
6. 7 years old on 30th day from toxemia following mastoid infection.
7. 4 years old on 35th day from otitis media and meningitis.
8. 1 year old on 39th day from pneumonia, otitis and enterocolitis.
9. 2 years old on 22d day from otitis and broncho-pneumonia.

Of the 9 cases, 7 gave history and ward record of diarrhea, 5 gave history of relapse, 2 gave history of infection through other members in their family. In the literature of 6732 cases (9, 4, 2, 6, 15, 8, 11, 7, 1, 16, 17, 18, 19, 20, 21) the mortality is given as 5.5%, against Holt's figures in 2603 cases of 5.4%. I have not included in my list the earlier statistics of Heborn, Guinian, Breman and Torias, given in *Pediatrics*, New York, 1907, Vol. xix, p. 530, as 14%, 17%, 17% and 12%, respectively; nor have I included Griffith's mortality in 75 infants as 16%.

On treatment, my statistics have but little to offer. This series began, luckily, after the time that antipyretics were in vogue, and I find no note of this type of therapy, save the giving of sodium salicylate in a case complicated by arthritic pain and tonsillitis. Intestinal antisepsics were not tried either. Urotropin was occasionally used on various services toward the end of convalescence in hopes of discharging the cases with urine free of typhoid bacilli, yet in two cases where this was done and sterile cultures of urine planted, both cases showed positive cultures 3 and 5 days before discharge. Hydrotherapy has been almost universally used for temperatures over 103.5° F. A good number of histories have no treatment noted and but rarely have the results of this therapeutic measure been commented on in the after notes, save in cases where the "child did not tolerate the cold pack," or "fretted over each administration of cold sponge" or the note is made that "the sponge seemed to quiet the delirium." The routine is to give sponges at temperature of 85° F. for temperature 103.5 or over. Despite this negative evidence, I am personally convinced that hydrotherapy has a very definite power for good, not only as a sedative, but as a vascular and cardiac tonic, though, as in all therapy, it should be carefully adapted to the individual patient.

Medicinal Therapy divides itself into stimulants, sedatives, and symptomatic use of drugs. *Stimulants* for vascular inefficiency were used in 41% of all cases, though I did not mention in my complications cardiac weakness as shown by signs of myocarditis; its frequency is far greater than I have been led to believe by perusal of the literature. A rapid, thready, poor tension or irregular pulse is of common occurrence in the long protracted fevers or in cases of marked inanition. To my mind this frequency can be greatly diminished by a higher caloric diet, but when present, it has been well combated by the use of strychnia, in the early days by brandy, and occasionally by digitalis preparations and caffeine. *Sedatives* were used but rarely in delirium and occasionally to tide over a case in extreme pain from some complication. *Symptomatic Drugs* which were utilized, comprise antisepsics for skin and mouth infections, those for bronchitis and occasionally for diarrhea.

Cathartics, I believe, have no place in the medicamentarium of typhoid therapy. In three instances, of the very few noted in this series,

relapses began on the day of or the day following their administration.

Enemata, on the other hand, are an essential, harmless and most efficient means of therapy in this disease in childhood.

Autogenous or stock vaccines were used in 5 cases with no marked beneficial results, and in 2 of long protracted febrile state their use was followed by complications in both instances. This series is too short to be of value, but the results of vaccine treatment were far from startling, and to me the scientific principle is wrong.

Leucocytic Sera were used in three cases with no apparent beneficial effect on the temperature curve, the course of the disease, relapses or complications, as two out of these three had either a relapse or a complication. Again I give these meagre statistics as a matter of interest only.

Lastly, I wish to mention diet. Here again statistics are of little help unless the individual daily food charts are available for each patient. Luckily such were available in many instances. Our early statistics show the administration of "liquid diet" in the early, or throughout the febrile phase of the disease. I have tried to make note of the result of an increase in dietary upon the clinical charts. In 171 cases noted, as beginning on liquid or milk diet, 68 showed a rise in temperature on the day of or within two days of the addition of "soft solids." These rises in temperature were never over 101°, they had some slight coincident rise in pulse that lasted from 4 to 12 days, or an average of 6.3 days. This series omits 13 cases which I have previously made mention of as true relapses. Furthermore, it has been the custom in the last few years to give every patient a fuller dietary from the start, and I can find no increase in frequency of relapses, but do find an actual decrease in the duration of the disease, both as to the febrile state and the total length of stay in the hospital. Typhoid children can be made to take a relatively high caloric diet, bland, non-irritating and not tiresome, and I am convinced that it is a great essential for the success of the treatment.

IN CONCLUSION.

Typhoid is a relatively common disease in childhood and far more prevalent in infancy than formerly supposed.

Symptomatically it is ushered in very much as in adults, with headaches, fever, malaise and abdominal pain as the most frequent symptoms. In this series and in a large collected series from the literature.

The spleen is enlarged in 71% of all cases.

Rose spots are seen in 61%.

Positive Widals are seen relatively early in 88.2%.

White blood count is below 10,000 in 73%.

The fever lasts an average of 25 days.

Relapses occur in 11.8%, intestinal hemorrhages in 4.2%, perforation of intestines in

1.2%, complications in 10.6%, and the mortality is 5.3%.

Therapeutically. A diet, bland, high caloric, and suited to the individual need of each patient, is most important.

Hydrotherapy seems to have a vital place in the treatment of the febrile and delirious stage of the disease.

Enemata are essential in a high percentage of cases.

Stimulants and other symptomatic drugs are to be used as need arises, for typhoid is a disease, cured not by medicine, but by good nursing and keen, sensible therapy; for, as Dr. Morse has said, "the tendency in all these cases is to get well, no matter what the treatment, unless it is absolutely bad."

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THE THERAPEUTIC VALUE OF OCCUPATION FOR THE INSANE.

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I.

FOR some years past much has been said about the therapeutic value of occupation and diversion for the insane. However, in reports of a great number of insane hospitals, fifty and seventy-five years ago, the same idea was expressed as at the present time and the various occupations were mentioned.

In the report of the Trustees of the Worcester State Lunatic Hospital, dated Dec. 30, 1835, we find the following:-

"Experience has proved the vast importance of labor and its utility. There are in the hospital more than a dozen able-bodied men who can labor daily in the field, and as many others that may be employed a part of the time profitably and pleasantly. An institution of this

kind will have a large number of working men among its inmates at all times. We find these always inclined to labor. Shut up in halls, or in their cells, they are unhappy, restless, discontented and in consequence less mild and docile, often troublesome.

"Another beneficial influence of labor which operates alike on the sane and insane mind, and which greatly enhances its utility, is the idea of production for benefit. This idea of practical utility, this witnessing the results of their own labor in the improvements of the grounds and walks, in the culture of flowers, the growth of vegetation, the manufacture of tools and implements, and such comforts as contribute to the benefit of those who are within the reach of their influence,—all these and similar pursuits lead the mind from the consideration of causes to their effects."

The city of Boston established a hospital for her insane at South Boston in 1839. This was the third hospital in the state, the first being the McLean Hospital, in 1818; the second, the Worcester State Hospital, founded in 1833. The Boston City Hospital was placed between the Workhouse and the House of Correction. When it was completed the insane were taken from the penal institutions, where many had been kept in strong wooden cages on wheels. In fine weather, as an extraordinary touch of kind treatment, these cages were drawn out of doors. When the hospital was ready it was a simple matter to transfer the insane in their cages to the new building, where they were at once released and treated like human beings.

Dickens, in his "American Notes," in describing his visit to the Boston City Hospital in 1842, speaks of the patients as working, reading, playing at skittles and other games, and said, "In the garden and on the farm, they work with spades, rakes and hoes. For amusement they walk, run, fish, paint, read, and ride out. They also have a weekly ball."

The Taunton State Hospital was opened in 1854. In the report of that year the Superintendent, Dr. George C. S. Choate, has written as follows:—

"In traversing the halls of lunatic hospitals, even those where no expense has been spared in any department, every person must be struck with one great want which stares him in the face at all points. I mean the lack of occupation.

"At least two-thirds of the inmates of lunatic hospitals are capable of some employment and need it as much as sane people, or more. And yet, even in institutions where the greatest pains have been taken to introduce new amusements, and everything which can make the time pass agreeably and profitably, a large portion of it is spent by most of the inmates in sheer apathy and idleness.

"In acute cases, after the excitement has passed away, I believe that employment of some sort is more important than it is in any other

situation in which a man can be placed. The great object of treatment in such cases must obviously be to divert the attention from self, from the subjects of delusion, and fix it, without exercising it too severely, on some other interesting object. This can in no way be so effectually done as by interesting the patient in some occupation.

"In melancholy cases, what so likely to be beneficial in calling the mind away from gloomy meditations? And in all how necessary is employment to induce sleep, which is so frequently disturbed in insanity, and to promote the health of all the animal functions, which is so important to health of mind."

In this first year 30% of the men and 17% of the women are noted as employed.

From report of 1867 of the Northampton State Lunatic Hospital:—

"Man was made for occupation and activity. They are essential to his well being, both bodily and mental. What is true of mankind in general, in this respect, is true of the insane. Occupation, either bodily or mental, is desirable for all whose health will admit of it; and the occupation should, as far as practicable, be such as will contribute to health by sufficient corporeal exercise. This is especially true in respect to all who have been accustomed to manual labor.

"It may still be asserted, as in some earlier reports, that not less than three-fourths of all the labor upon the premises, within doors and without, is performed by patients. . . . The mass of effective laborers are the incurable beneficiaries of the state. But there are many exceptions to this rule, and it not infrequently occurs, in all classes of curable patients, that when the person begins to work we feel a full assurance that he will be restored to mental health; and this assurance is rarely falsified."

Then follows a list of the articles made and repaired (pillows and mattresses). The Superintendent adds: "It is to be regretted that there is not more of this work, so well adapted to the capacity of a large number of patients; could it be increased threefold, that increase would be a great blessing."

In this same report of 1867, under "Exercises and Entertainments," the Superintendent has written: "The plan of having a diversity of exercises and entertainments within doors, which was adopted anterior to the time of the last annual report, has been continued, and not only the actual number, but the proportion of patients partaking in those exercises has been increased."

A list is given showing the number of times in which the patients have assembled in the course of the year, for each of the several exercises or entertainments:—

1. Exercises in the chapel, on the sabbath: Divine worship in the afternoon..... 52 times
2. Exercises in the chapel, on regular evenings: Scriptural reading and sacred music. 177 times

Poetical reading and sacred music...	24	times
Prose reading and sacred music....	24	"
Lectures.....	45	"
3. Exercises in the Rotunda:		
Dance in the evening.....	26	"
4. No gathering.....	17	"
Total days in the year.....	365	

The Superintendent has expressed his views on the desirability of Chapel services on Sunday and states that more than two-thirds of the patients of the hospital attended during the year.

The evenings of Scriptural reading and sacred music, the patients met together in the chapel and a chapter from the Bible was read and two hymns were sung, accompanied by the organ. The average attendance for the year was nearly two-thirds of the number in the hospital.

The selections of poetry read included the pathetic and humorous, and the average attendance was 1 and a decimal more than the average attendance of the Scriptural evenings.

In this year of 1867 prose readings were given for the first time, and the report records that the "success was far beyond anticipation." The average number attending these readings was 4 and a decimal more than the number attending the poetical evenings.

The 45 lectures covered a variety of subjects, including: "Description of Dublin," "Oxygen, with Experiments," "The Howlers or Howling Dervishes of Constantinople," "The Reformation," "Structure and Functions of the Liver," "Nature and Causes of Insanity," "Exhibition with the Magic Lantern." The average number attending was 9.12 more than the number attending the prose evenings; this number was only 18 less than the average attendance upon the Sabbath.

Many of the patients considered the six lectures on insanity as the most interesting of the course. To what extent they applied to themselves the knowledge gained, could not be determined, but the doctor suggested that many of them applied much that was said "to their neighbors."

In closing this part of his report he has said, "I believe these exercises to be among the most valuable means for the attainment of the important object for which the hospital was founded."

The library of 1250 books was accessible to the patients on certain days. Magazines, weekly and daily papers were read by the patient.

Under amusements, the bowling alley, billiards, baseball, and swings are mentioned and apparatus for indoor games had been purchased.

The report for the year 1868 is similar to the year 1867, but an increased average in attendance is noted at the entertainments, although 24 days are mentioned when no entertainment took place. Baekgammon and battle dore are also mentioned among the games.

Again in 1869 we find the Superintendent writing that five times as much work could be done, such as renovating beds, if they had it.

In this year prose reading numbered 103

times and Scriptural reading 83 times; 16 days are mentioned when there was no assembly.

The report of 1873 states that that year for the first time in the history of the hospital an attendant was regularly employed throughout the year for the special purpose of working out of doors with the patients. In all suitable conditions of weather he was out with from six to twelve men, ready to do anything which appeared necessary or proper to be done. In stormy weather the same company found employment within doors. In this report is stated the following:—

"It has long been considered that one of the principal elements of the superiority of the British, and some of the continental hospitals, over the American institutions of the same kind, is the extent to which manual labor is introduced into them. It is not alone more extensive than here, but it is better organized, and consequently more constant and systematic. At most, if not all, of the county asylums of England, all the clothing, for both men and women, with, perhaps, the exception of hats for the former, is made upon the premises and mostly by patients.

II.

The work of the Hospital is to recover to such whose condition still makes it possible, the use and enjoyment of their bodily and mental functions, and to restore them to their place in life and society. To appease, and to conceal by appeasing, the condition of those who are considered to be outside of recovery.

It is claimed that occupation of some kind is necessary to the contentment and well-being of every individual. To the normal person occupation gives a deep and persistent interest in the varied phases of life, also diversion and pleasure. To many that are sick it can give much the same, while to the mentally sick it is acknowledged to be the most powerful single agent in a curative treatment.

Training and mental occupation exercise a most salutary effect upon the mind and strengthen it against many causes of insanity.

Observation and experience have shown that occupation of the hands leads to the diverting of the mind from itself. That the gradual and progressive training in hand and mind occupation exercises a growing force in the patient's recovery.

As a remedy, occupation brings in a new and outside interest, which may go far toward bringing about a self-forgetfulness, mental and physical. It affords a training in habit, which if well ordered tends toward contentment and confidence. Occupation has a socializing effect upon the patient, lessens restraint, restlessness and insomnia.

Mental enfeeblement of the individual is the result of insanity, and by idleness this enfeeblement is continued or increased. Only by persistent effort, and use of the functions which re-

main to him, is the patient enabled to retain them.

The result of all mental action is an increased power to act, and a tendency to act again in the same way. Development and training mean an increase of the mind's power, and a tendency to act again in a given activity.

The failure to employ the faculties of the mind can cause a low condition of habit, and produce indulgences and vices directly favorable to insanity; while a mind regularly engaged in sound and healthy exercises escapes such demoralizing tendencies. Idleness gives opportunity for introspection. The old adage, "Satan finds some mischief still for idle hands to do," was never more true than in relation to the insane.

Occupation should be adapted to the capabilities of the patient. The work should be stimulating and attractive, and if possible allow the patient an opportunity to express some individuality. If it fails to stimulate, the mind wanders and it is time for some change. Forced attention is not only wearing but ineffectual. Too close attention is tiring and exhausts the nervous energy, thus reducing the power of attention. Work should divert and entertain as well as occupy.

It is often said that no rule can be laid down and that individual cases are treated differently. However, in most cases I believe occupation should be somewhat varied; one form should not be continued too long or long enough to become monotonous and merely mechanical, for then the tendency of the patient is often to drop it. Monotonous or long continued work is known to have a depressing, deadening or irritating effect even upon the mind of the normal person. Hard work, if varied, is less likely to upset and become injurious.

With many of the mentally sick there is little of the power of judgment or reason. But what is taught can be acquired only by the patient using his own activity. So that occupation is desirable which secures from the patient his best mental effort. Successful employment means interest, and the methods must be individual. It is said that the growth of the power of attention may be viewed as a progressive formation of habit. As a general rule, the mind distinctly perceives only those objects to which it gives some degree of attention, the exceptions being those cases in which the mind is spontaneously incited and held by the attractiveness of the object perceived.

"The attractive force of a stimulus is determined not simply by its quantity, but also by its quality—by its agreeable, disagreeable, or indifferent character," also by association.

Unusual or unfamiliar sights and sounds may arouse the attention momentarily, but the quality of being interesting must be present if the attention is to be held. This may depend upon some aspect of the object, as being unusual, possessing beauty of form or color, suggestiveness,

association, or some other attribute; but much depends upon the mental vigor at the time. As we all know, a mind preoccupied is unfavorable to attention, and to arouse it is needed a stimulus of greater force.

These very facts prove that in occupational therapy in a hospital it is necessary to have many forms of occupation; for what may prove an attractive stimulus to one may not necessarily prove so to another.

We are interested in things we understand, or of which we have at least some knowledge. If we know nothing of mechanics we are not likely to be interested in a complicated machine. On the other hand, if we have some knowledge of basketry, weaving, or lace making, the sight of an unusual basket, a beautiful woven scarf, or an exquisite piece of lace immediately arouses our interest and secures our attention. Many people are keen observers in relation to those things which interest them, while they can be quite unconscious of other surroundings. Interest invites and sustains attention. Many times that which is associated with a pleasurable interest or is interesting and new will secure and hold the attention where other attempts have failed. Curiosity may also be a powerful aid. Many times, if the attention is secured, interest is aroused. If this can be repeated then the interest comes more easily, and harder tasks become possible.

Each response of the mind toward the doing of hand work renders it quicker in responding again toward the same kind of stimulus. What is at first difficult and irksome tends to become easy and pleasurable, as practice lends skill and capability. Although a process may be interesting in itself, it would become irksome if the result did not help to sustain the interest.

When an impression is made upon the mind, to become effective it must be again repeated, and over and over. Without practice and repetition the impression gained loses effect after an interval the frequency of the repetition is the determining factor, and not only the number of repetitions. A dementia precoox patient may be able to make bobbin lace, but it means the steady application of the teacher and pupil for a period each day until the pattern is mastered. To repeat the lesson with the patient one, two, or three times, and then leave her alone for a week, would probably mean that the process would have to be begun all over again. On the other hand, if these lessons were continued too long at one time, or too often, they might still be unsuccessful.

Occupations vary in their action upon the patients. With some, the employment which brings in color and texture appeals strongly. Others are interested in form, while others are pleased with the problematical side, or a simple mechanical process.

Color yields a great and varied pleasure and is as stimulating to many as music and is necessary and useful. Color in itself tends to depress

or exhilarate. Monotony of color is both depressing and tiring.

In one hospital a girl was weaving toweling. It was the same thing yard after yard, and she seemed to have but little interest in it and frequently left it to wander about the room. The experiment was tried with her of weaving near the ends of each towel a border, using a color. Perhaps one towel would have bands of blue and another of red, the two towels being separated with a line of color. This simple device changed the whole aspect of the work and was successful in keeping the girl interested. With many women the pleasure of weaving lies almost wholly in the use of color.

A dementia precox patient, who was weaving the plain centre of a scarf, was always asking for color. Finally the desire to weave the colored border prevailed, and the scarf was finished several inches shorter than was originally planned. After this experienced her next weaving was planned to include lines of color across at intervals of two or three inches.

Suggestion enters life in a hundred forms and ways. It varies with individuals. While some are most sensitive to a suggestion, with others an opposite impulse to the suggestion may be awakened. This is an important factor in the daily life of the insane.

The natural impulse of children to imitate those about them, in all sorts of actions, is seen again in older people. If we notice only, for example, the latest fashion, as seen in dress, dancing, or other amusements, we at once see that grown-up folks are merely older children. The mentally sick are no exception to the rule. The tendency to imitate those about us is a very important aid to development; and this impulse may be of great value in the work of occupation in the hospital.

If the majority of the patients are doing something, the natural impulse (even of many demented patients) is to try to follow the example. On the other hand, if the majority are doing nothing, there will be an atmosphere of unrest, if nothing worse, and there will be little that is conducive to work and healthful condition.

Environment, as with the normal person means much; plenty of space, air and sunshine are necessary for well being. As the report of Dr. Earle said, the effect of music, quiet recreation, social enjoyment, dancing, pictures, games and religious exercises,—each has its place. Play aids industrial, social and moral efficiency. Whatever our vocation, our recreation is that which acts refreshingly upon mind and body and relieves the monotony of that vocation.

The question whether a patient should be given the same kind of work that he or she was accustomed to do in previous life, or should be interested in something quite different and new, is one that no fixed rule can determine. With some patients it is noticed that their interest is awakened by doing something that brings back a memory of their past life and experience.

With others the reviving of familiar work can but revive associations that have a depressing and detrimental effect. Each case, in fact, has to be studied and treated separately, and according to its own conditions, at many times. An English physician has stated as follows in favor of giving a wholly different kind of occupation: "A town-bred artisan, such as a tailor, admitted in a low state of bodily health, if sent out daily for gentle employment in the garden, generally becomes greatly improved physically, and concurrent with the physical improvement, often comes gradual restoration of reason. So also a rustic, inclining to dementia, if put to work at a trade often brightens up considerably, whereas, if sent out to work on the farm or in the garden, employment that he has been used to from birth, would set to work at it mechanically, and it would be of but little benefit to him."

A sense of accomplishment can act as an incentive to the insane as well as to the sane. Work should be graded, going from the simple to the complex. If it is too simple, interest will flag; on the other hand, if it should be so complicated as to be unsuccessful, it may take weeks to undo the depressing effect.

The old time curious, rightly called crazy, things produced should make way for something of real value to the patient, the institution, or the community. Although it is better for a patient to make or be employed on almost anything rather than be empty handed and idle, yet the health-giving value is greatly increased if the work done is something really worth while. It inspires self-respect, induces to further effort and undertaking; and whatever inspires and encourages produces a mental and bodily state of real restorative value to the patient.

The mere fact of giving materials to patients is not enough to produce the desired effect. Some teaching is generally required beside gentleness and tact.

The method of teaching should be one's own, and should embody one's own ideals and convictions, and should fit one's individual power. The effectiveness of teaching comes from what one puts into it. Honest praise for effort, result, or both, is worth while wherever it may be. Appreciation is desirable, but a critical attitude is often deadening to all further effort.

While occupation of the patients is of economic value to the institution, lessening the number of attendants needed and the wear and tear upon the attendants, and all concerned, this aspect of the matter should be secondary and kept subordinate to the main purpose—the remedial effect and value of the work upon the patient.

In many cases the knowledge and training gained by occupational work in a hospital has enabled the patient to go back into the world and apply the acquired knowledge and handicraft as a means of livelihood.

To the incurable, occupation appeases the

hopelessness of life and means that each day is made more bearable, and that something akin to happiness is put in place of a dull and colorless existence.

THE TEACHING OF APPLIED THERAPEUTICS AT TUFTS MEDICAL SCHOOL.

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THE teaching of therapeutics, one of the most important subjects in the medical curriculum, is one of the weak points in American medical schools. The fundamentals of drug treatment are taught by lectures and laboratory exercises in the department of pharmacology, and the actual details of treatment incidental to the instruction in clinical medicine; but no systematic instruction is usually given in the general principles of therapeutics as an independent subject. During the past year an attempt has been made to strengthen the teaching of therapeutics at Tufts Medical School by giving, in addition to such instruction as is usually given, a course which shall bridge over the gap between pharmacology, physiology, chemistry, and the other fundamental sciences upon which treatment is based, on the one hand, and the actual details of handling patients from day to day, on the other hand; and shall serve as an introduction to the general principles of applied therapeutics. Though the course is still in an embryonic stage, various expressions of interest on the part of the students, colleagues, and others have influenced me to make a statement concerning its purposes, scope, and methods in the hope that such a statement might stimulate helpful criticism.

It is, of course, true that the forms which any one disease may take,—depending on the severity of the disease and on the fact that different patients react so differently to disease with difference in age, sex, constitutional characteristics, and other factors,—show so many different clinical pictures in different patients, and change so much from day to day in any one patient, that the treatment of every new patient is a new problem, and that, therefore, the actual details of treating sick patients can properly be learned only by long continued bedside observation of many patients under treatment, by the inductive experimental methods now used in teaching the subject in the departments of clinical medicine. We treat individuals rather than diseases. And this is especially true in the case of chronic diseases where the exact details of treatment depend largely on the severity of the disease, on the extent to which function is disturbed, on the condition of the patient as a whole, factors concerning which good judgment is gained,—since exact measurements play but a

very small part,—only by long, clinical experience with cases of all grades of severity. But there are, nevertheless, certain general principles relating to the purpose and methods back of the many details which cannot well be taught incidental to the other instruction in clinical medicine and which deserve and need treatment as a separate subject.

Pharmacology deals with some of these principles of treatment but not all, for this is not the province of pharmacology. Pharmacology deals with the action of chemical compounds in the body, with the physiological action of substances quite independently of their therapeutic effect; it deals with the action, not only of those substances which are useful in therapeutics, but also those like muscarin, curarin, and saponin, which are not useful in therapeutics and whose action is chiefly harmful; furthermore, in the case of useful drugs, pharmacology deals not only with those activities which are of therapeutic significance, but also those which are not. Although until very recently this was not strictly true, and pharmacology could hardly be said to exist as a science independent of practical therapeutics, it has now developed to such an extent that it is pursued as an independent science without reference to the practical needs of medicine in the same way, and with the same justification, that chemistry, and physiology,—both of them once a part of practical medicine,—are now pursued as independent sciences. In actual practice, drug treatment is nearly always combined with other forms of treatment; agents such as heat, cold, baths, rest, exercise, posture, diet, massage, electricity, x-rays, high altitude, and sunlight are very extensively used in therapeutics. An intelligent application of these other agents depends upon a knowledge of physiology, physics, chemistry, psychology, and other factors, as well as pharmacology, and the other factors,—even such a one as the personality of the physician,—are, in certain instances, of more importance than the strictly pharmacological knowledge. A knowledge of pathology and clinical medicine, especially, though not necessary for the pharmacologist, is an absolutely necessary pre-requisite for the study of therapeutics; the therapeutically important questions relating to the effect of pathological conditions in altering the action of drugs,—we now have abundant evidence showing that drugs may have a different effect in pathological conditions from what they have in health,—and to when and how to use drugs in disease is outside the province of pharmacology: furthermore, questions relating to diagnosis and prognosis which have to be taken into consideration in therapeutics, and good judgment in estimating the effect of treatment on the clinical condition require a knowledge of clinical medicine. A knowledge of pharmacology alone, then, is not a sufficient basis for the treatment of diseased patients.

There is, therefore, a deficiency in the usual medical curriculum and an urgent need for a

course dealing with the general principles of applied therapeutics, a course which shall bridge over the gap between pharmacology and the other fundamental sciences upon which treatment is based and the actual details of treatment themselves. It is such a course that has been added to the medical curriculum at Tufts. *Since students take up the study of medicine for the purpose of learning to treat sick patients, this course covers the most important department of medicine;* the practical purpose of pathology, physiology, diagnosis, and other fundamental branches is to help us treat the patient; the details of therapeutics as demonstrated in the subsequent clinics are shown as illustrations of the practical application of these principles of therapeutics.

The first question taken up is that of the purpose of treatment. This question, not such a simple one as it may seem at first, and one often lost sight of in actual practice, is very fundamental, since upon the point of view adopted toward it depends the whole character of the course in applied therapeutics. When the surgeon treats a broken bone or removes a diseased appendix he aims at ridding the patient of all evidence of disease, but when the physician uses digitalis, diuretics, and other agents in cases of heart disease his purpose is neither to remove a diseased valve nor to make it whole, but to improve cardiac function. In both cases, however, the aim is,—and this is the fundamental purpose of all treatment,—*to improve the functional efficiency of the patient.* How we go about improving the functional efficiency of a sick person depends upon the nature of the disease, the principles of treatment in acute and chronic diseases, for example, showing certain distinct differences.

The ideal of treatment in acute disease is complete removal of disease, diseased material, or the causes of disease,—the antitoxin treatment of diphtheria, and the removal of a diseased appendix are examples. In treating those acute diseases for which there is as yet no known specific cure the principle of treatment is very simple; in the hope of increasing the resistance of the patient to the disease, we support his strength, promote his comfort, give him in its broadest sense the best hygienic environment possible. It is clear that such methods are aimed not directly, but only very indirectly, at the disease itself; the disease itself is left to run its course under conditions which, so far as our knowledge goes, and so far as we can influence the conditions, we believe to be most favorable for the patient. Though we hope and believe that under such treatment the patient's chances of succumbing are decreased, it is, nevertheless, often questionable how much such methods shorten the course of the disease, or influence it in other ways. The therapeutics of acute disease are, therefore, largely a matter of detail; the general principles of treatment are comparatively simple.

In chronic disease the ideal is somewhat dif-

ferent. When the heart, for example, is so far diseased that the amount of work which it can do is less than the amount of work required of it,—when compensation fails,—the leaky valve or other anatomical change responsible for the condition cannot be removed or made whole. This is not necessary; the patient with heart disease often knows nothing of the anatomical changes responsible for his condition; he wants the symptoms alleviated so that he will be more comfortable and able to do his work. In other words, it is not *anatomical integrity*,—about which he may know nothing,—which interests the patient, but his *functional efficiency*. On account of the very great reserve powers,—the high factor of safety,—of all our organs, an organ may be the seat of disease and yet be functionally efficient; it has been calculated that the normal heart, for example, can do six times the work ordinarily required of it; and we know that the factor of safety of certain double organs, like the lungs and kidneys,—since one of the pair can be entirely removed without danger to the patient,—must be at least one hundred per cent; but with severe disease, there comes a time when the affected organ cannot perform the amount of work ordinarily required of it, and the physician is called in to restore equilibrium between the work required of the organ and the work which it can do. Two general groups of methods are utilized to restore equilibrium: (1) methods which decrease the work required of the organ, (2) methods which stimulate the power of the organ to do work. We have long recognized that drugs cannot qualitatively change function, but can only increase or decrease function; the same thing is true of other forms of treatment; under their influence, function may be increased or decreased but not qualitatively changed. A knowledge of therapeutics, especially the therapeutics of chronic disease, consists largely of a knowledge of (1) methods of stimulating organs or functions, (2) methods of resting organs or functions, (3) knowledge of when and how to apply such methods. Though the diseased organ may never become normal as the result of treatment, it may, nevertheless, be made functionally efficient, that is, competent to its tasks.

Every opportunity is given the student to observe methods of treating acute disease, but since,—as the considerations which follow will, I think, show,—training in the treatment of chronic disease is the only training that can lay the foundation for a rational knowledge of therapeutics, stress is laid particularly on the principles of treatment of chronic disease. The details of treatment in chronic disease depend on the *severity* of the disease, on the *degree* to which functional efficiency is impaired. Since we have made scarcely a beginning in our methods for the exact measurement of functional efficiency, all estimates of the severity of the impairment of function and of the degree of change, either for better or worse, in the severity

of the disease depend on the judgment of the physician. Judgment concerning the degree of disturbance of a function like circulation, for example, depends on estimates of the severity of the dyspnea, cyanosis, weakness on exertion, and other more subtle changes, none of them capable of very exact measurement, and a comparison of these changes with those seen in many other cases. To this kind of judgment must be added, as the basis for the treatment of each new case, experimental observation of the effect of treatment in influencing the severity of the disease. Such knowledge and judgment is acquired only as the result of long experience combined with proper training and some natural ability and aptitude for this kind of work. In other words, in contrast with the standardized, simple, exact, and easily learned treatment of acute disease, the treatment of chronic disease requires long clinical experience, good training, and special talent in observation and comparison. In acute disease, furthermore, but a small proportion of the population suffers at any one time, and the illness lasts but a short time,—in the course of a few weeks the patient is either well or dead; the most important feature of the treatment belongs to the field of preventive medicine. With chronic disease the case is quite different. A large proportion of persons who have reached middle life suffer from some weakness of function, some handicap based on a physical defect,—in its widest sense, some form of chronic disease,—this is not over in a few weeks; the patients may live a long time and must adjust themselves to their handicapped condition. In such cases it is the province of the physician to help them adjust themselves; the length of time they live, their general efficiency and comfort depend very largely on treatment; almost everything, in fact, depends on the physician. Furthermore, in the treatment of chronic disease, a broader view of all the circumstances of the case must be taken than in the treatment of acute disease; facts concerning the nature of the patient's occupation and the state of his family and financial affairs must be taken into consideration. In acute disease these factors enter very little; for the few days during which they are sick, no matter what may be their family or financial responsibilities, all patients with such diseases as pneumonia or typhoid fever usually succeed in having the same excellent treatment carried out.

Great emphasis is laid on the hopefulness gained by this point of view, that in chronic disease, the aim of treatment is improvement in function. Not only students, but also eminent practitioners as well, often show a lamentable tendency to direct all their attention to the anatomical basis of the disturbance to the exclusion of treatment; their whole aim seems to be only to determine as accurately as possible the exact anatomical nature of the lesion present, and, partly because of considering nothing but the anatomical-structural changes, and, realizing

the difficulty, if not impossibility, of influencing these changes, they have shown a tendency to skepticism in their attitude toward the treatment of chronic disease. Another mistake associated with this one is the tendency, not only of the laity but also of many well trained physicians, to consider the so-called "chronic and incurable diseases," as conditions having an inherent downward tendency, and, from the standpoint of therapeutics, hopeless. This point of view is a wrong one; most chronic diseases do not have an inherent downward tendency; they result in a weakness of function and, if the functional activity of the patient is adapted to his functional capacity, the *status quo* may often be maintained. It is a mistake to associate the words "chronic" and "incurable," as they often are, together. The dictionaries (Century, Webster) define "incurable" as "beyond the power or skill of medicine," and give "hopeless" as a synonym. If this definition is correct, we should reserve the term "incurable" for such diseases as the acute infectious diseases, not susceptible of specific treatment, whose course is "beyond the power or skill of medicine" to directly influence, and not use these expressions with reference to such conditions as heart disease, Bright's disease, diabetes, and many other chronic diseases, the anatomical changes of which we are, indeed, unable to influence, but whose course is most decidedly amenable to treatment, often, indeed, very largely determined by it. The term "incurable" implies that the physician is powerless in the face of the condition. Since the physician is often unable to directly influence their course, we may, therefore, properly use this term with reference to many of the acute infectious diseases, but not with reference to most chronic diseases, for in such conditions he is far from powerless. A wrong point of view regarding the purpose of treatment is responsible for both of these mistakes. To counteract this attitude toward disease, great emphasis is laid on the correct point of view, namely, that in the treatment of chronic disease we try to influence not so much structure as function. A patient whose leg had been amputated would not be sent away with the statement that, since it is impossible for him to grow a new leg, nothing can be done for him; by the use of an artificial leg such a patient can be made nearly as efficient as a normal man. The same attitude should be taken toward patients with incurable lesions of internal organs; these patients, too, can often be made functionally efficient. In examining patients, attention is directed chiefly to the nature and degree of the disturbance of function; in heart disease, for example, it is emphasized that we do not treat murmurs, that in some of the worst cases of cardiac decompensation murmurs are absent, and that, therefore, it is a mistake to pay more attention to murmurs than to the degree of circulatory decompensation as evidenced by the history of the patient. A correct point of view in this respect is of the greatest importance.

since it makes for a very great gain in hopefulness.

Since it is only through feeling confident of obtaining good results that the physician,—in the face, often, of great difficulties,—can carry out his treatment with enthusiasm, I believe that it is very important to strongly impress students early in their medical career with an optimistic and hopeful attitude toward the results of treatment. That chronic disease is amenable to treatment and has a hopeful outlook is capable of demonstration, and is one of the things we try to show students. Our optimism regarding the effect of treatment at the hospital where the instruction is given (The Robert Bent Brigham Hospital) is probably much influenced by the fact that we see the results of treatment *with the treatment properly carried out*; the less optimistic point of view of many physicians is often due not to the poor results of treatment but to discouragement at the *difficulties of having treatment intelligently carried out* in private practice; and this distinction we try to bring home to the student. The object of the course is, then, not alone to show how to treat sick patients, but also to demonstrate how much treatment can do, especially for patients with chronic disease.

On account of the fact that it is usually not the anatomical lesion which we treat, but the disturbance of function, and that, in diagnosis, so much attention is devoted to the nature and degree of this disturbance of function, we try, as far as possible, to base our therapeutics on a rational knowledge of the functions of the various organs and methods of influencing these functions, and, therefore, discuss very thoroughly the pathological physiology of the various diseases and our methods of measuring functional activity. Active scientific investigation is going on at the hospital where the instruction is given, and the students are introduced to the problems of scientific investigation so far as these problems relate to treatment. It is pointed out that, whereas the most important practical objects of research in acute medicine are the development of methods of exact diagnosis, the discovery of direct, specific methods of treatment, and the development and establishment of schemes of preventive medicine; in chronic medicine, on the other hand, one of the most important objects of research concerns itself with the development of methods of more exact measurement of functional efficiency, in order that the results of treatment may be more quickly and accurately gauged,—methods that may replace or supplement the less exact guesses of the clinician,—guesses in which the personal equation enters to such a large extent. Notable success in the measurement of functional efficiency has been reached in the case of diabetes; improvement in function,—and, therefore, the effectiveness of treatment in diabetes,—is quickly and accurately determined by measurement of the power of the body to metabolize carbohydrate. A good start

has already been made in kidney disease; the physician is no longer satisfied with the knowledge that the urine contains granular casts, blood cells, and albumin,—as a matter of fact, in some of the worst cases of chronic nephritis it may be nearly impossible to demonstrate either albumin or casts, and mild cases of nephritis may show much albumin in the urine,—but measured amounts of water, sodium chloride, and dyestuffs are administered, and the amount excreted in a definite time compared with the normal as a measure of the efficiency of the glomeruli and of the tubules in excreting waste products. Possibly the recent studies of the relation of purin metabolism to gout may fulfill a similar function for this disease. At present more attention is being directed to the question of the accurate measurement of functional efficiency, and on account of its bearing on therapeutics this phase of research is emphasized to the students.

The facilities for teaching are excellent. The course is given in a large modern hospital of about 150 beds, well equipped for diagnosis, treatment, pathological studies, and scientific laboratory investigation and with abundant and varied clinical material. While the hospital is one for chronic disease, nevertheless, as a result of intercurrent infection, acute exacerbation, or other reason, many patients with acute conditions come under observation, so that all the common acute diseases such as pneumonia, typhoid fever, the acute stages of rheumatism, appendicitis, gall-stones, gastric ulcer, and tonsillitis are seen during the course of the year. Among chronic diseases, the variety is very great; cases of all the common, and many of the uncommon, diseases of the heart, kidneys, vessels, blood, lungs, joints, bones, nervous system, skin, gastro-intestinal tract and general metabolism are seen at all times. Not only medical methods of treatment, but also, by co-operation of members of the staff, surgical, orthopedic, and other special forms of treatment are demonstrated. Much attention is devoted to the so-called imponderable remedies,—massage, exercise, hydrotherapy, posture, and diet, and the students have an opportunity of observing these methods carried out under the direction of experts.

In the discussion of treatment the plan is to take up first the treatment of diseases of the heart, then, in succession diseases of the kidneys, the vessels, diseases of respiration, the blood, the gastro-intestinal tract, and last, diseases of metabolism. This seems a rational order of discussion: the heart has but one function, that of maintaining the circulation, and, in the treatment of heart disease, there is but one function to be influenced; though the details of treatment may be modified by the nature of the lesion, the general principles of treatment are practically the same, whether the endocardium or the myocardium is the seat of disease, whether the lesion is one of the mitral or of the aortic valve, that is to say, the exact nature of the anatomical

lesion is of far less significance, so far as treatment is concerned, than the question of the severity of the disturbance of function, as evidenced by the amount of venous congestion, edema, dyspnea, or other symptoms of impaired circulation. In the treatment of diseases of the gastro-intestinal tract a new complication is introduced: the gastro-intestinal tract is made up of a number of distinct organs, and each of these organs has several distinct functions; the same general principles,—stimulation of function, and rest of function,—are used, and the degree of disturbance of function is of the utmost importance, but we must first recognize which part of the gastro-intestinal tract is diseased, and which particular function,—motor, digestive or absorptive,—is disturbed before applying treatment. Diseases of the kidney occupy a position intermediate between diseases of the heart and diseases of the intestine. At the present time the treatment can be discussed with the same degree of simplicity as that of heart disease; it depends chiefly on the severity of the disease, on the extent to which waste products are accumulating in the body. There is, however, some difference in function between the glomeruli and the tubules, and a case is occasionally found in which it is chiefly the tubules or chiefly the glomeruli which are imperfectly functioning; in other words, a case in which the exact distribution of the lesion is significant for treatment. In diseases of the general metabolism the disturbance of function often cannot be related to any particular organ, sometimes, perhaps, simply because we do not know which organ is diseased; in other cases, perhaps, because the cells of the body as a whole are involved. In discussing diseases of the different organs, the functions of the organs are very briefly reviewed and then are taken up, in turn, the nature of the disturbances of function which pathological changes in the organ can lead to, methods of influencing these disturbances of function, and, finally, the clinical forms of disease of the organ; the facts are then illustrated by demonstration of patients in the wards.

Instruction is given to small sections of both third and fourth year students. Each exercise lasts one hour; the first half hour is devoted usually to a talk on the general principles of treating diseases of some one organ, the last half hour to an exhibition of patients under treatment. The work would be better carried out, I believe, by having the students first read up methods of treatment on the outside and then having the important features impressed upon them and the methods of treatment illustrated by bedside quizzes; but there is at present neither a text-book nor a syllabus that treats the subject in a suitable manner, and, furthermore, the extensive use of the quiz method of instruction in the subject would mean slower progress in covering the ground than the time at present allotted to the course warrants. New forms of disease are successively taken up and new pa-

tients shown, but the patients already seen are followed from day to day to show the effect of treatment and the necessity for changes in treatment. Emphasis is laid throughout on the *general principles* of treatment; and it is pointed out that whereas the details of treatment,—the particular drug used, the size of the dose, and often even more important features,—may differ with different physicians, yet the general principles of treatment are essentially the same with different physicians, and one physician can, as I do, use the treatment charts of other physicians as good examples of methods of treatment. Many of the patients are seen again by the student under colleagues giving other courses at the school, so that the student is able to complete his picture of the cases by other points of view.

THE WORKMEN'S COMPENSATION ACT AND THE PHYSICIAN.

BY HERBERT J. CRONIN, M.D., CAMBRIDGE, MASS.

THAT the medical fees in workmen's compensation cases must be reasonable and should be based on an industrial basis rather than what the traffic can bear; that efficiency of physicians in returning their patients to work at the earliest possible time is now demanded; that adequate treatment be urged for the employees who may be treated in public hospitals; and that the possibilities of state socialism in respect to medicine can be avoided only by the proper co-operation of the physicians with the insurance companies, are some of the points of interest in a consideration of the present problems in relation to the workmen's compensation act in Massachusetts.

"The policy of the Industrial Accident Board is to treat the medical fraternity as a profession," says Dr. Francis D. Domoghue, medical advisor to the Board. "We are straining every effort to make this law what its framers intended it to be. There are constant problems arising which the Board is called upon to interpret; but that is to be expected of all new legislation. So far the law has been an entire success and we hope to see its provisions extended to take in all classes of employees and the benefits larger for all concerned. A clear understanding of the law by physicians will be a great help in avoiding misunderstandings."

The question of fees is still the most important point to the practicing physician. There is no standard schedule of fees. The law in this respect states:—

"During the first two weeks after the injury, and, if the employee is not immediately incapacitated thereby from earning full wages, then from the time of such incapacity, and in unusual cases, in the discretion of the Board, for a longer period, the association shall furnish *reasonable*

medical and hospital services, and medicines when they are needed."

The Board in interpreting the word "reasonable" medical service feel that the charges should be levied on an industrial basis. The charge should be no more than if the injured working-man came to the physician for personal advice and treatment and the bill was not to be paid by the insurance company. In this respect, the insurance companies have complained bitterly that some physicians deliberately pad their bills and make unnecessary visits in compensation cases. They cite instances where a physician makes three calls a day for fourteen days, at \$5.00 a visit, for such trivial injuries as a crushed finger tip!

The Industrial Accident Board have the supervision of the fees under the law:—

"Fees of . . . physicians. . . shall be subject to the approval of the . . . Board. If the association and any physician . . . fail to reach an agreement as to the amount to be paid for such services. . . the board . . . may. . . call for the formation of a committee of arbitration. . . "

Of course in such cases the company must show reason why the bill is contested and evidence given if it is claimed that the bill is padded.

The guide-posts by which the Board determine the amount of fee a doctor is entitled to are:—

1. The locality in which he practices; for the man in the mountains of Western Massachusetts does not receive nor expect to receive what the metropolitan doctor does.
2. The nature of the injury.
3. The standing of the practitioner in his profession.

In common practice, the following fees may be given as an example of what is generally accepted by the insurance companies without protest:—

Office calls	\$1.00
Office calls with an important dressing . . .	\$1.50
House calls of any sort	\$2.00

If there is a large dressing, such as a severe burn, \$2.50 is allowed for a house call.

Numerous questions arise in relation to house calls. For instance, if a man, injured in Cambridge lived in Dorchester, wished the Cambridge doctor who gave him first aid to continue to treat him at his home, can that doctor charge the extra fee ordinarily asked for going that distance? The Board, in such cases, will not allow more than the \$2.00 fee because it feels that there are just as competent men in Dorchester who will treat that man for \$2.00, and if he demands his own physician, he must himself pay the expenses of the visit above \$2.00.

Then there is the question of more than one visit a day. The companies usually refer these cases to the Board for approval unless the case is one of obvious merit.

House calls for an injured upper extremity

are looked upon as worthy of investigation; for it is felt that so long as the man can walk he could go to the office of the doctor and keep down the expense.

Daily dressings of clean sutured wounds are not only disapproved by the best medical practices, but the advisors of insurance companies realize that they are unnecessary and refer them to the Board for approval.

Many other points arise, but the doctor who will live within the spirit of the act, and make his charges fair for the type case he treats, will have no trouble. There are no bad debts in insurance cases. One is always sure of an early payment, and as these cases are constantly occurring he will have other chances of gaining revenue.

The doctor in this state gets a higher return for service than in any other state in the Union where a similar act is in force.

The fees in first aid treatment are about as follows:—

The thorough cleansing of a wound filled with grease and dirt, that takes much time and skill, is allowed from \$3 to \$6, according to the severity of the wound and the after-results with regard to sepsis. The strapping of a fractured rib is granted from \$3 to \$5. Small clean sutures and the incision and drainage of small septic areas are allowed from \$3 to \$5. The fee for an etherizer is from \$3 to \$5 according to the length of the operation. With operations themselves, the fee question is a constant source of controversy. At one time it was recommended to the Board that \$50 should be the maximum for any operation. This is a fair fee for such cases as it is a well known fact among physicians that \$50 is gratefully received for most major operations among the working classes, who choose a private surgeon rather than go to a public hospital. In the smaller operations, such as the amputation of a finger or toe, the fee is from \$5 to \$10, while the reduction and first dressing of a Colles fracture is from \$10 to \$15.

To some it seems that this problem could be best served by a fee table. The insurance companies would welcome a standard set of prices. Yet this would mean that all men, no matter what their qualifications were, would be classed alike under the law. If instituted, it would take away the present elasticity of the act and not allow the fullest possibilities of adequate treatment in cases where the best was needed, regardless of the cost.

When the Workmen's Compensation Act was originally drafted, the Legislature created the Massachusetts Employees Insurance Association, which was to be a mutual company composed entirely of employers with a monopoly of the workmen's compensation business in this state. But amendments were added which allowed all insurance companies to write compensation under the act in competition with the State Association. This competition has produced a healthy

condition in the interpretation of the act, because if the State company were supreme they could not only force a fee table of their own making on the medical profession, but could open their own hospitals and demand that the employees go to them or be refused compensation. Thus the work would be concentrated in a few hands, to the detriment of the profession at large. Most of the companies today are perfectly willing that the employee shall choose his own attendant if that physician is willing to limit his charges to those considered reasonable. In a recent amendment of the law this is considered:—

"Where, in case of emergency, or for other justifiable cause, a physician other than the one provided by the association is called to treat the injured employee, the reasonable cost of his services shall be paid by the association, subject to the approval of the Industrial Accident Board. Such approval shall be granted only if the Board finds that there was such justifiable cause and that the charge for the services is reasonable."

This clause has justly given the Board the needed power of discretion in cases where the insurance company has attempted to force its physician on an employee who has good reasons why he wants to choose his own.

The contract system, used by some of the companies, is to be deplored. It is natural that the company will try to employ a physician as reasonable as possible and may not always choose the most efficient one. Cases are treated on a wholesale basis, and as the individual fee is so small, the physicians cannot afford to spend but a limited amount of time on a case. This also is not the spirit of the act, which demands the best possible treatment at reasonable prices.

Then again the contract doctor comes immediately into competition with the regular family doctor; for after the injured employee gets acquainted with the contract doctor, he is liable to continue to call on him for other family troubles. Even in ordinary illnesses, the employees themselves are tempted to have the company doctor because they feel that it will probably help them with their employer if there is a question of losing their position.

As it is now, the family physician is being well paid for his services, and the money that was formerly taken out of that family for injuries, now remains and the physician has a better opportunity of being paid if he attends the wife or children.

When the act first went into effect, the insurance companies were distrustful of the doctors. But today this attitude has given way to a more enlightened one. The companies find that the doctors were willing to coöperate and, with the Industrial Accident Board acting as an intermediary of the highest judicial ability, it seems that all future problems can be easily handled with the best interests to all concerned.

Today the companies demand that a man shall

be efficient in his treatment of these cases. A doctor should try to get the patient back to work in the shortest possible time. A man may break his leg and the bone be firmly united in eight weeks, but because of muscle stiffness and atrophy, he will continue to limp around and refuse to go back to work. This man may not be a malingerer, even in spirit, but he feels that it is necessary for his best recovery to stay away from work until the leg feels as good as before the accident. He is getting his weekly compensation and thinks the company is rich and well able to pay him his dues. If a doctor in such a case will apply the well known methods of active and passive motion with massage and baking, as well as the proper mental encouragement, he can get the man back to his work in a much quicker time. As the law now stands, deliberate attempts at malingering can be partly avoided by this part of the Act:—

"After an employee has received an injury, and from time to time thereafter during the continuance of his disability he shall, if so requested by the association . . . submit himself to an examination by a physician . . . furnished and paid for by the association. If he refuses to submit himself for the examination, or in any other way obstructs the same, his right to compensation shall be suspended and his compensation during the period of suspension may be forfeited."

The practicing physician is now able to compete with the out-patient departments of the various public hospitals which are charging \$1.00 a visit at wholesale rates. He can give the individual care which is so necessary in these cases if they are to return to work quickly. Visit the out-patient department of the Boston City Hospital any morning and see the treatment given to the industrial cases there! A line of men, daily averaging about 150, are crowded together in a small room, examined hastily by an externe, and passed on to the dressing room, where the treatment is applied by a student or attendant, whose main idea is to slap on bandages, get the patients out and have them return as few times as possible. Septic cases are herded together with clean wounds, and the student dresser goes from one to another. Is it any wonder that the clean cases go septic and then twice the time is necessary for their recovery? The same conditions prevail at the Haymarket Square Relief Hospital. Ninety per cent. of the traumatic surgery that comes into this hospital is treated by students who have no interest in the case and will never see it again. Their aim is to get the cases fixed up as quickly as possible and then refer them to the Main Hospital (City Hospital) for their after-treatment. Every case is first seen by a house officer, and if he considers it serious, or it happens to be a railroad accident case, which means a court fee to the resident surgeon, then the house officer will show the case to the resident surgeon, who will give him advice as to the treatment. I have

seen an injury as serious as a punctured wound of the knee joint in a child treated, with the knowledge of the resident surgeon, by a third-year medical student!

There is springing up at present a type of so-called emergency hospitals, which are masquerading under the guise of charitable institutions, but really are preying on industrial cases. Here again it is wholesale treatment with not the best interests of the patient at heart. Such hospitals should not get the same compensation as the family doctor and efforts should be made to discourage their growth.

The records of physicians and hospitals are notoriously poor in the industrial cases. There should be a complete record kept and especial note made on the end-result of the injury for reference to by the Board and especially in court proceedings.

The question of charges for board and room in hospitals along with special treatments of various sorts, such as x-rays, etc., has been solved for the present as follows, according to the Board's Annual Report:-

"The Industrial Accident Board approves the following fees by hospitals:-

1. The fee for hospital care in all cases shall not be more than \$15 a week, in addition to the following extras:-

2. Operating room fee, \$5.

3. X-ray, \$5 for each examination, without regard to the number of plates made, except for examinations of the head, trunk or hips, when a charge not to exceed \$10 may be made.

4. Serums, special drugs and special appliances may be charged for at cost.

5. When it becomes necessary to engage a special nurse for more than three days, the insurer should be notified, and have the right to bring the matter to the attention of the Industrial Accident Board for investigation as to the necessity for the engagement of the nurse and the extent of nursing required. The maximum charge per day for such special nursing shall not exceed \$4.

6. The board will approve a charge, not to exceed \$3, for ambulance calls within a radius of three miles, and \$1 for each additional mile, the charge to be made only in one direction.

7. The fee for out-patients shall not exceed \$1 for each visit.

8. When a surgeon is employed to care for an injured person and such person is admitted to the hospital, or when the custom or rule of the hospital provides that a patient shall pay the surgeon's fee, the Board will approve of the payment of a reasonable fee to the surgeon, in addition to hospital charges."

The question of x-rays has been much abused. It is felt that the x-ray should be taken only in case of doubt and then that the fee be allowed only to an expert. The promiscuous taking of pictures by general practitioners with a poor machine, which results in a plate of little or no

use, does not come within the meaning of this ruling.

There is now a feeling that the staff of no hospital should be allowed to charge a fee for the care of industrial cases. Such doctors would then probably make a more concerted effort to get these cases out of the wards if there were no daily income for them while they remained there. The corraling of cases by the staffs of some of the public hospitals and making private patients out of them, is much to be deplored and should not be countenanced.

There is no question that the proper application of the Workmen's Compensation Act will prevent any relapse into state socialism for the medical profession, such as is now in force in England and Germany.

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A METHOD OF TESTING GASTRIC SECRETION BY THE USE OF A SELF-CLOSING DREDGE.

BY ALEX. M. BURGESS, M.D., PROVIDENCE, R. I.

OF the many attempts which have heretofore been made to find a method of obtaining a sample of gastric contents without the use of a stomach tube, none has been absolutely successful. The failures are due chiefly to the fact that contamination with esophageal and pharyngeal mucus has been found unavoidable. Among such attempts may be mentioned the use of a small sponge on a thread, the Einhorn bucket, and the thread test. A method recently suggested by Rehfuss of Philadelphia, which involves the use of a steel capsule containing capillary tubes filled with agar is, however, not open to this above-mentioned objection. In this instance the gastric juice enters the capsule by several small perforations, and alters the color of the indicator which is contained in the tubes of agar. On removal, the action of esophageal and pharyngeal mucus is practically negligible and can affect only the extreme ends of the agar tubes. Thus the question of the presence of acid in the gastric secretion is answered, although no actual sample of the secretion is obtained.

During the summer of 1915, while working in the Ewald Clinie at the Augusta Hospital in Berlin, there occurred to the writer the fundamental ideas on which the following method is based.

This method consists of the use of a capsule, which is so constructed that it automatically closes as it leaves the stomach, and thus protects its contents from contamination. This automatic closure, the essential feature of the capsule, is made possible by the fact that the

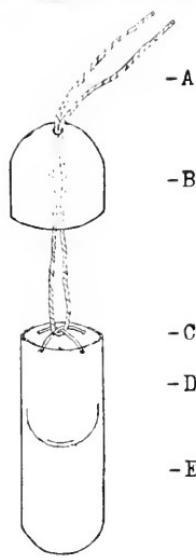


FIG. 1.

Diagram of Dredge Threaded with Silk, and with Parts Separated.

A—Silk thread.

B—Glass cover of dredge.

C—Crossed platinum wires, with thread passing beneath them.

D—Hollow part of lower portion of dredge.

E—Solid glass.

cover (see diagram, Fig. 1) is perforated by a small hole, through which passes the silk thread to which is attached the lower part of the capsule. Thus the cover is free to move upon the thread. When the dredge, as the capsule may appropriately be called, in being removed from the stomach, reaches the cardia, the cover is forced down upon the lower portion, and it is thus effectively closed and may be drawn up through the esophagus without any chance of contamination of its contents. The cover should not fit the lower portion tightly, but should be about 1 to 0.5 mm. greater in diameter than the outside diameter of the latter. This allows the cover to slip down easily over the lower portion when it meets resistance from above.

As important as the effective closure of the dredge on leaving the stomach, is the effective opening and filling after it is introduced. This is accomplished by placing it in an ordinary gelatin capsule which fits closely around it, and allows it to be swallowed while open, the parts being held separate within the inclosing capsule, and as soon as the gelatin is dissolved in the stomach, the dredge readily fills with fluid. At body temperature the gelatin dissolves sufficiently to allow the dredge to fill in from one to five minutes, but fifteen or twenty minutes should be added to allow for further solution of the gelatin so that there may be no interference with the closure of the dredge in its removal.

The problem of weighting the dredge so that it may be readily swallowed, and so that it will sink in water, is solved by having half of the

lower portion made of solid glass. Mr. A. W. Clafin, of George L. Clafin and Company, Providence, has been successful in devising and producing this dredge for me. A detailed description of it follows:—

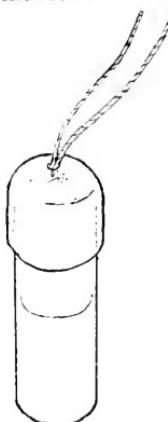


FIG. 2.

Dredge closed.

The dredge consists of two parts, a lower portion and a cover. The lower portion is cylindrical (see Fig. 1) with rounding base, and one-half of it is solid glass. The walls of the upper cup-shaped half of the lower portion are 0.5 to 0.75 mm. in thickness. The opening at the top is spanned by two pieces of No. 26 platinum wire, crossed at right angles, and with their ends securely embedded in the glass. These wires are slightly curved and are set with the convexity of their curves upward. The upper portion, or cover of the dredge is dome-shaped, and half as long as the lower portion. It is perforated at the top centre by a minute hole, sufficiently large to allow it to slide back and forth on two strands of No. 9 surgical silk, which pass through it. This hole is carefully fire-polished so as to leave no cutting edge. The inside diameter of the cover is 0.5 to 1 mm. greater than the outside diameter of the lower portion, so that it may fit down easily over the latter. All edges are carefully fire-polished.

Four sizes have been used; their measurements as follows:—

	1.	2.	3.	4.
N.	N.	N.	N.	N.
Length of lower portion in mm.....	10	13	17	20
Length of cover in mm.....	5	6	8	10

Outside diameter of lower portion.... 4 5 7 8

NOTE.—Gelatin capsules which have been used with these dredges are No. 2, No. 1, No. 00, No. 000.—Eli Lilly and Company.

Method of using the dredge:—

The dredge should first be threaded with No. 9 surgical silk, by passing the silk first through the perforation in the cover from above, then beneath

the crossed platinum wires of the lower portion, and back through the hole in the cover from beneath. The silk should be drawn through and cut so that the dredge is strung upon a double thread of about 70 centimeters in length. The cut ends are tied together. The dredge is then fitted into the proper sized gelatin capsule in such a way that the two parts are held separate within the closed gelatin covering. They may be made to adhere to their respective gelatin coverings by the use of 50% alcohol, although in actual use this procedure has appeared to be superfluous.

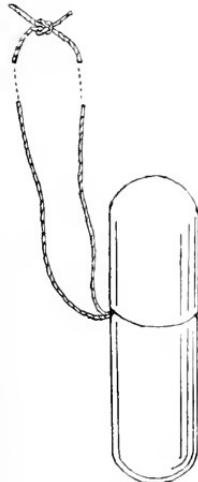


FIG. 3.

Dredge within gelatin capsule ready to be swallowed.

Immediately before being swallowed, first the thread and then the gelatin covering of the dredge should be moistened with cold water. A little water may be taken to aid in swallowing the dredge. When it has been swallowed and has drawn down almost all of the silk thread, the remaining loop with the knot may conveniently be held beneath the upper lip, or the knot may be slipped between two teeth. There is no discomfort from the presence of the thread while the dredge is in the stomach.

In removing the dredge, gentle and steady traction is made on the thread until the dredge sticks at the level of the cricoid cartilage. A little water may then be taken in the mouth and the dredge removed without difficulty at the moment the water is being swallowed. If several repeated tests are to be made following a single test meal, it is, of course, necessary to swallow and remove the dredge without the taking of water, and this can ordinarily be done without difficulty.

By the use of the dredge an adequate qualitative examination of the gastric contents is possible without the discomfort to the patient which attends the passage of the stomach tube. With the two smaller sizes it is convenient to use a bit of congo red paper in the dredge to indicate the presence of hydrochloric acid, and to transfer a little of the fluid to a slide with a capillary pipette for microscopical examination. The

capacity of the two larger sizes is such that 0.1 c.c. or more of gastric contents is obtained, and with care an accurate titration of the acidity can be made. For this purpose it is convenient to use N/200 NaOH solution in an ordinary burette. By the use of the larger dredges it is possible to carry out, if desired, a study of the variations of acidity in the course of gastric digestion, as is done by Rehfuss and his associates, using his modification of the Einhorn duodenal tube. To the practising physician, however, the dredge will prove most useful in those cases in which he feels the need of a simple examination of gastric contents, but does not feel justified in putting his patient through the ordeal which is often involved in even the most skilfully performed passage of a stomach tube.

Clinical Department.

SUNSHINE: ITS NEGLECTED ANALGESIC-SEDATIVE ACTION.

BY JOHN BRYANT, M.D., BOSTON.

THE healing power of the sun has been known, one might almost say, for countless ages, and it is common knowledge that it makes one "feel good" to go off on a vacation and get one's skin tanned a mahogany color by the sun, even at the expense of a few blisters. Modern scientific application of this knowledge is, however, curiously limited. Solaria are numerous enough, but there is little attempt to get direct application of the sun to the skin, except in the case of the artificial Finsen light for lupus, or more recently in the case of bone and joint tuberculosis, as at Leysin by Rollier.

Since Rollier is one of the foremost, as also one of the most successful, exponents of the virtues of heliotherapy, it may be worth while to inquire what of his methods are available elsewhere. It was the author's privilege to leave Lausanne early one perfect May morning, and after following the border of the Lake of Geneva, to mount rapidly to the three to four thousand foot elevation of Leysin. The first impression is of the extreme beauty of the location, having as it does the snow-capped Alps and Mont Blanc, for its keynote. The second impression one receives, on walking through the village, is of the superlative health and positive optimism of the sick people to be seen on every house balcony.*

Next, one notices the architectural arrangements of the buildings of Rollier's clinie, imposed by the necessity of securing privacy for individual patients during insolation. Arrived

* At this time there were 1200 tubercular patients in the town, and for want of more beds there was a waiting list covering all Europe. Austrians were in greatest number, and the list was long enough so that an applicant was fortunate if he arrived after six months' of endeavor.



FIG. 1.—Rollier's Sanatorium, Les Frênes, Leysin.
Showing open-air cubicles for private or adult cases. The open roof
is used for ward children.

at the clinic; it was impossible to avoid asking the exceedingly capable head nurse what food it was that made possible the universal ruddy cheeks and smiles and cheerfulness of the patients. She replied that neither children nor adults were stuffed. Her recipe seemed to be plenty of sunshine inside and out, and plain wholesome food and not too much of it. Faith



FIG. 2.—Children's Ward, Leysin.
Showing open-air treatment in summer.



FIG. 3.—Leysin.
Sun cure in winter by Dr. Rollier's method. Clothing consists of
hat, short tights, and shoes. This costume is possible owing to
the extreme dryness of the snow and air at the considerable elevation
of the clinic.

in the future must be an important element in the condition of universal mental bliss to be found here, for it seems practically certain that, even though the time may be two or three years, the invalid may look forward to discarding props and crutches, and to returning home cured.

The technic of insolation has been fully described by Rollier and others, and it is only necessary to say that the sun is very powerful, and that it is capable of producing harm as well as benefit when not properly controlled. Of chief importance for immediate consideration is the fact that during the process of insolation, pain ceases, and nervous irritability decreases or disappears.

It is obvious that tuberculosis is not the only disease marked by pain and hyper-irritability of the nervous system, and it seemed reasonable that some of Rollier's principles could well be applied to other problems in medicine. True, his stage-setting cannot be moved, and the elevation and air may not be the same in other places, but the sun is not always behind the clouds or hidden in smoke or fog, even in New England. Therefore, when occasion arose, it seemed highly desirable to try an experiment in home insolation,—for want of the hospital facilities at Leyzin. The experiment has been justified by its results, as suggested by the two following case histories:—

CASE 1. Mr. G., age 45, was first seen when in a practically hopeless condition, suffering from atrophic arthritis. Pain was incessant, and it was impossible for him to remain more than fifteen minutes in any position, day or night. Pain and restlessness were only partly relieved by a change in diet and other medication. As his bedroom window faced south and the sun was imitating that of Egypt, his bed was placed by the window with due precaution against draughts, and his body was increasingly exposed to the sun, devoid of all clothing. By the time he could remain for an hour or two in the sun, the change was astonishing. He remained quiet, dozing, contented, apparently free from pain and no longer begging to be turned, during the whole of his sun baths. A decided improvement was shown during the remainder of the day and night interval, but during the exposures complete comfort seemed to be attained. Though insolation did not alter the final result, the increased comfort attained was apparently appreciated, not only by the sufferer, but by the others most nearly concerned.

CASE 2. Mrs. F., aged 38, was referred for treatment of extreme emaciation and viscerotroposis. When first seen, although the height was 5 feet 7 inches, the weight was 87 pounds, the upper arm apparently being only slightly larger than the wrist. Nervous irritability was extreme, the patient stating that every nerve in her body was jumping all the time. She was, in short, an example of the state to which injudicious treatment can bring the feminine carnivore of extreme type. Diet and other measures rapidly added fifteen pounds to her weight, with corresponding improvement in general condition and in "the nerves." But as in the first case, the measure from which the greatest relief was obtained, was the sun bath. When the exposure had reached an hour a day for the whole body, the "nerves" practically disappeared, to return at once as soon as for sufficient reasons it was impossible to give the time to continuing the sun baths. At present the patient remains in a satisfactory condition, despite severe drains upon her strength and

powers of resistance, and she is confident that further progress will be uninterrupted as soon as arrangements can be made for continuing the insulation.

These two cases prove sufficiently the possibility of bringing the beneficent action of sunshine to the individual, where it is not possible to provide efficient hospital facilities for insulation. Such hospital facilities do not, so far as the author knows, exist in this vicinity. This applies not only to the tubercular, but to the many other cases suffering from chronic pain, especially in the bones or joints, or from nervous hyper-irritability, or both.

Sunshine, when properly used, has both a powerful analgesic and a sedative action. It is to be hoped that if hospitals or sanatoria cannot be equipped for giving patients adequate insulation, advantage may at least be taken of the value of carrying out this efficacious form of treatment at the home of the individual sufferer. In a word, sunshine is a simple, cheap, and efficient analgesic-sedative, of which more extensive use can be made with correspondingly gratifying results.



NEUROMA OF ULNAR NERVE: ANALYSIS OF A CASE.

BY JAMES B. AYER, M.D., BOSTON,

Assistant in Neurology and Neuropathology, Harvard Medical School; Assistant Neurologist, Massachusetts General Hospital.

THE following case is worthy of publication, on account of its manifold teachings and interest to neurologist, surgeon, pathologist, and physiologist. A cut across the elbow, insignificant at the time even to the eye of an expert, leads later to complete ulnar paralysis, the formation of a painful tumor, and three operations, with serious residual palsy after six years.

Without further introduction, let us read the case in summary (italics being used to accentuate matters considered of importance in the general understanding of the case).

R. W., in May, 1909, when thirty-four years of age, accidentally cut her left arm just above the elbow with a knife; the wound was sutured and healed in two weeks. A few weeks later, July 27, 1909, on account of a feeling of numbness in her little finger she was seen by the visiting neurologist at the Massachusetts General Hospital, who found motion and sensation present in the ulnar nerve distribution and makes note "*apparently no nerve involvement.*" When the patient returned next on Oct. 21, 1909, anesthesia, pain, weakness, R.D., all referable to the ulnar nerve, were unmistakable, and operation was advised.

On Jan. 8, 1910 (eight months after the injury) operation was performed: "Old scar at elbow excised—ulnar nerve located and found largely cut across, cut ends freshened and approximated with int. silk. *Nerve apparently imbedded in scar tissue which was not disturbed.*"

The patient after leaving the hospital did not return for four years. On Feb. 17, 1914, she was seen by the writer and gave the following story: *No improvement had followed the operation;* she still has pain and tingling over ulnar distribution, and has also had *for two years a small painful mass* in the scar of the old operation, and thinks it is growing larger. Neurological findings: "Anesthesia in ulnar distribution, left hand. Pain in same region. Loss of ulnar power in hand, wasting of interossei. R.D. of ulnar muscles. Mass in scar." (W. E. Paul.) Surgical interference was advised, and on Feb. 19, 1914, Dr. C. A. Porter performed the following operation:—

"Five-inch incision, excising old scar. *Ulnar freed.* A nerve bulb, size of end of finger, found on proximal end of nerve. This was connected by a few shreds of tissue—two to three mm. in diameter with the distal ulnar. This thinned portion of the nerve was about one inch in extent. Bulb and thread-like portion excised and slight tension was made upon proximal end. Nerve united by two chromic No. 00 catgut sutures, put up with arm extended. Cargyle membrane about suture. Fat over

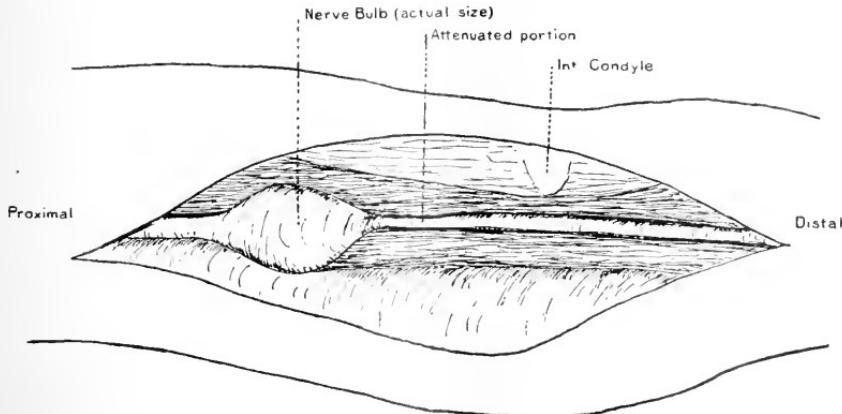


PLATE I.—Ulnar nerve and neuroma freed from bed of scar tissue, as they appeared at operation, 1914.
Approximately two-thirds actual size.



PLATE II.—Neuroma. x60. Shows whorls of myelin. This is characteristic of the whole tumor.

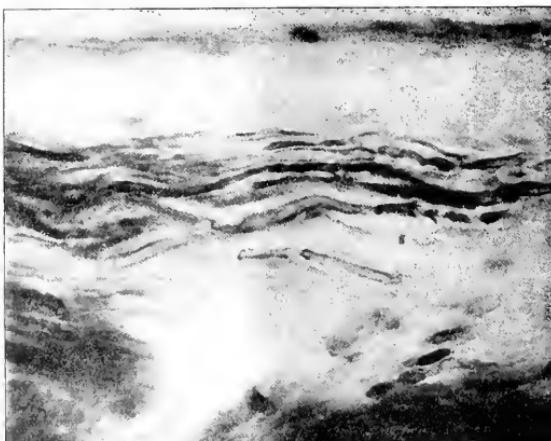


PLATE III.—Neuroma. x1000. Shows individual myelin sheaths which compose the whorls seen in Plate II.

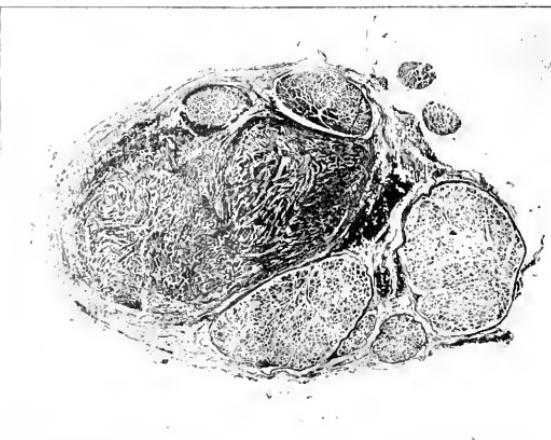


PLATE IV.—Cross section of nerve distal to tumor, the portion freed from scar tissue at operation. At least two-thirds of the "nerve" is connective tissue. x13.

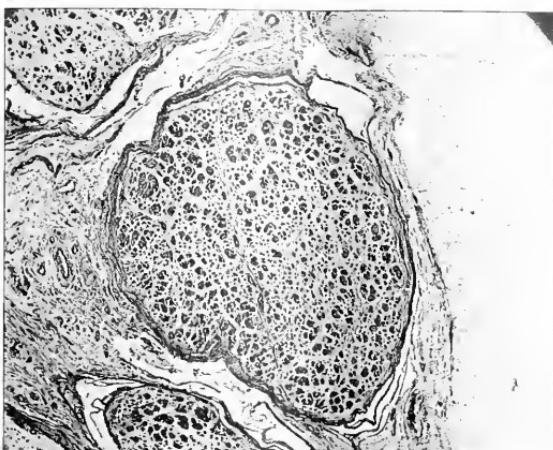


PLATE V.—Detail of small bundle appearing in Plate IV, showing individual nerve fibres interspersed with masses of fibrous tissue. $\times 70$.

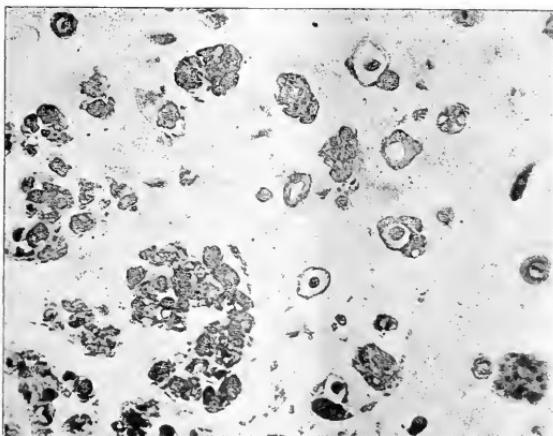


PLATE VI.—Detail of Plate V. Shows normal nerve fibres surrounded by and intermixed with islands of connective tissue. $\times 1000$.



PLATE VII.—Shows marked atrophy of thenar and hypothenar eminences of left hand with tendency to "claw" appearance.

nerve and skin closed with S.W., interrupted. Arm extended in splint."

Feb. 28. Wound healed by first intention.

March 2. Arm flexed at right angle. Internal angular splint. Discharged.

On May 23, 1914, she returned and was seen by the writer because another tumor had formed above the scar; it was very tender and pressure caused pain in little finger. There were the same evidences of ulnar paralysis as before. This tumor was not interfered with and, as she stated subsequently, *it soon went away*.

On sending for her, the patient again returned one year later, on Feb. 6, 1915, saying that strength and feeling were the same as before the last operation, but that she was now *free from the pins and needles sensation*, and there was no pain or tenderness. On examination most of ulnar muscles showed sluggish activity and reacted to faradism. There was still considerable atrophy of the hypothenar muscles, and the characteristic ulnar deformity of the hand. Epicritic sensation absent.

Pathological examination of the tumor and attached nerve follows:—

The material consists of a firm bulbous mass, 1.5 by 1.5 by 0.5 cm. in size, from one end of which protrudes a tissue of similar consistency, oval in cross section, measuring 8 by 5 m.m., simulating in size and consistency a normal ulnar nerve—the whole forming a discrete bit of tissue, encapsulated, except at the cut ends.

On sectioning, the *bulbous mass* is found uniformly dense, and on staining this tissue is found to be almost entirely composed of myelin sheaths arranged in whorls—for the most part the myelin is continuous about a central unstained axis, similar to its appearance in normal nerve tissue.

The appended portion, the *ulnar nerve distal to this tumor*, is most interesting, and requires detailed study.

The cross section 2 cm. below the tumor shows the tissue arranged in bundles, and on staining, these bundles are found to be of different nature; approximately two-thirds of the cross section is occupied entirely by connective tissue, for the most part of recent formation, though some is of long standing. The remaining one-third consists of several bundles of loose connective tissue, with numerous isolated nerve fibers in its meshes; in places, nerve fibers are in bundles, but in such case the bundle is surrounded and interspersed with dense and young connective tissue, and the myelin in such cases is seen to be greatly disintegrated, assuming the appearance of periaxial degeneration.

In a single cross section of the "nerve" at this point one may see a normal nerve fiber with myelin sheath intact, a group of two or three nerve fibers with connective tissue between, larger groups of degenerated nerve fibers surrounded by and interspersed with connective tissue, and areas of dense connective tissue still in the shape of the above-described islets, but with no vestige of nerve tissue remaining.

One more microscopic finding. In the meshes of the "nerve," most prominent both as to size and number in the neighborhood of the tumor, are seen long uniformly staining fibers and fibrils, not seen to branch, but to change their course frequently or run straight for seemingly indefinite distances. These fibrils are stained only by the Weigert method.

We are undoubtedly here dealing with a neuroma of the ulnar nerve,—a true increase in the nerve elements. Interest, however, centers chiefly about the portion of the nerve distal to the tumor. Two-thirds of this "nerve" by bulk is made up of connective tissue, and in the remaining third there are few nerve fibres, and most of these are not normal. What is the state of the nerve elements at this point? There is every reason to believe that there is a progressive degeneration of the nervous tissue and substitution by connective tissue, and that this process has been going on for months. It is impossible to state the underlying cause, or whether destruction of nerve fibres by connective tissue is the primary process. The appearance of the tissue at operation, however, an excessively dense scar tissue (from the accident four years previous) surrounding the nerve in question, places the suspicion on the connective tissue as a cause of pressure, and ischemia, with consequent nerve destruction.

SUMMARY AND DISCUSSION.

Let us review this case with the facts in mind, in order to interpret the findings and their significance.

When first seen the patient had no ulnar paralysis, evidently then the nerve had not been greatly affected by the original knife-cut, and we are forced to believe that the disability was largely due to the formation of scar tissue during the healing process, and found at the second operation.

Recently, in this connection, F. C. Cotton¹ has shown the frequency and mechanism of similar ulnar palsies from fractures of the elbow, due to scar tissue formation.

As the nerve was not removed from its bed of fibrous tissue in 1910, rejuvenation of the nerve was evidently impossible, and we find a painful and tender tumor, which is shown to be a true neuroma, i.e. whorls of myelinated fibers, gradually developing immediately above this obstruction. There is also found an atrophic condition of the nerve distal to the tumor in the area of the scar tissue, showing about two-thirds connective tissue and one-third nerve tissue, the two arranged in such manner that one is forced to believe there had been a slow attrition of the nervous elements, and replacement by the lower type of tissue; the mechanism of this process is best considered as one of compression and ischemia.

After excision of the tumor and of the scar tissue surrounding the nerve, we find a relief from the local pain and the tenderness, and also of the paresthesiae of the fingers, but a return of function only equivalent to that previous to operation. From this it would seem that the paresthesiae were symptoms of irritation of the nerve fibers, and that with removal of the source of irritation these symptoms disappeared, together with local pain and tenderness in the region of the tumor. That more function is not regained may be explained by a loss of vitality of fibers so long out of use, very likely leading to an atrophy of their cells of origin in cord and ganglia.

The second tumor, appearing soon after the operation in 1914, caused anxiety at the time, but its rapid and complete disappearance suggests that it was an exaggeration of the physiological "primary end bulb" of Ballance and Stewart,² and not a true neuroma.

What, then, may we learn from this case? Of interest to the pathologist and physiologist is the progressive formation of scar tissue with consequent progressive degeneration of nerve fibers, resulting in corresponding motor and sensory loss.

The formation of a true neuroma above the area affected suggests the cause of its growth as an attempt of nerve fibers to regenerate, aborted by obstruction distal to it.

From observation of the return of function one year after supposed freeing of the nerve it would appear that regeneration of fibers, shorn of their function for a period of four years, was impossible in this case.

The formation of a second small tumor at the end of the cut nerve of temporary existence, supports the contention of the importance of the "primary end bulb" in regeneration of a peripheral nerve.

To the clinician, neurologist and surgeon, the case teaches the importance of never allowing ourselves to be deceived by an apparently slight accident when in the region of a nerve (perhaps especially in the region of the elbow); if progressive disability occurs, due to nerve involvement, thorough surgical investigation is indicated, with complete freeing of the nerve from scar tissue as early as possible, and precautions taken to prevent the formation of a similar situation. If delayed several years, regeneration may not take place—even though the path for such be carefully prepared.

In the above criticism no excuse is necessary for the physicians and surgeons who dealt with the patient; an absence of the patient for four years at the most critical period is the chief cause of the above train of pathological events.

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The Fundamental Basis of Nutrition. By GRAHAM LUSK, Professor of Physiology. Cornell University Medical College and Scientific Director of the Russell Sage Institute of Pathology. New Haven: Yale University Press. 1914.

This monograph is the reprint of a lecture delivered by the author in November, 1913, as the anniversary address of the New York Academy

of Medicine. It may be regarded as the nucleus of Dr. Lusk's larger work, "The Elements of the Science of Nutrition," reviewed in the issue of the JOURNAL for July 21, 1910 (Vol. clxii, No. 3). It is intended ultimately for the educated laity, to afford them a better understanding of the principles of nutrition than can be derived from current popular writing. After a brief historical survey of the subject, the elements of nutrition are considered under the aspects of constant need of fuel and protein. Habits of diet are discussed and beriberi is described as a typical disease due to diet deficiency. The criteria of the monetary value of foods are analyzed and there is a useful index of dietetic terms. The book should be of value as a compendious manual in conjunction with the author's larger work.

The Difficulties and Emergencies of Obstetric Practice. By COMYNS BERKELEY, M.A., M.D., and VICTOR BONNEY, M.S., M.D. Second edition, with 302 illustrations. Philadelphia: P. Blakiston's Son and Company. 1915.

This book is an excellent reference book on obstetric complications. There is no book, so far as the reviewer is aware, that brings such a vast amount of material together in such a readable form.

In spite of its many excellent points, there is much that the reviewer cannot agree with: as, for example, the authors advise irrigation of a breast abscess several times a day with hydrogen peroxide; and again, in a forceps delivery they state that when the head has been brought down on the perineum the forceps may be removed and the uterus allowed to expel the child. The authors naturally advise the left lateral position for doing forceps operation, and there can be no criticism of that position, but when the illustrations show the operator's left hand over and about the anus, the reviewer cannot but feel their "aseptic conscience" is not what it should be. The chapter on artificial feeding of infants is totally inadequate and has absolutely no place in such a work. Notwithstanding these criticisms, the volume is a real addition to one's obstetric library.

A Practical Treatise on Diseases of the Skin. By OLIVER S. ORMSBY, M.D., Professor of Skin and Venereal Diseases in the Rush Medical College. Chicago. Octavo, 1168 pages, with 303 engravings and 39 plates in colors and monochrome. Philadelphia and New York: Lea and Febiger. 1915.

Of late years text-book has succeeded text-book on the subject of dermatology, with astonishing rapidity. A large number of these are by American writers. Many of these have attained considerable excellence. Ormsby of Chi-

eago is the last one to take up his pen, and he has produced a very good book of its kind. In one respect the book merits great praise and shows great improvement over most of the recent publications, and that is in the clearness and decisiveness of its literary style. Too many of what we have lately been introduced to seem to disregard totally a clear mode of expression. Ormsby's book does not go into details so much as many of its immediate predecessors, and there are fewer references to the literature.

The illustrations are excellent and the type good. It is a conservative book in its attitude to etiology and diagnosis, as well as in its paragraphs on treatment. It will be a safe and valuable book in the hands of the general practitioner.

Collected Papers of the Mayo Clinic, Rochester, Minnesota. Edited by Mrs. M. H. MELLISH. Vol. VI. 1914. Philadelphia and London: W. B. Saunders Company. 1915.

The sixth volume from the Mayo Clinic for the year 1914 consists of eight hundred pages; its general appearance and red binding are now familiar to all surgeons; it has the same beauty and prodigality of illustrations and the same accuracy of imprint. Thirty-one contributors have written eighty monographs, which are classified, as usual, under the general heads of Alimentary Canal, Urogenital Organs, Ductless Glands, Head, Trunk and Extremities, Technic and General Papers. We are impressed by the appearance of such papers as "Choice of Method in the Removal of the Eyeball" and "Tonsillectomy in Children from the Standpoint of the General Surgeon," also "Intestinal Parasites of Minnesota," since one would not expect to find them in reports of clinics which are essentially devoted to general surgery.

It is this year, as usual, impossible to criticize adequately and briefly the collective papers of the Mayo Clinic. A large number of them are valuable monographs based on an enormous number of cases, and almost all of the others are the results of hard work or long experience of highly trained specialists.

The book has become an essential element in the library of every progressive surgeon. It makes available to the reader in a very practical form the practice and results which characterize this extraordinary and essentially American surgical clinic.

The Psychology of the Kaiser. A Study of his Sentiments and his Obsession. By MORTON PRINCE. pp. 112. Boston: Richard C. Badger. 1915.

As an analyst of human character Dr. Prince is always interesting and suggestive. In this small brochure the attempt is made, with what measure of success the future alone can show, to

explain the present world happenings in relation to certain obsessions of the German Kaiser. It is Prince's belief that the Kaiser sees in the Social Democratic party a menace to his deeply rooted wish to be the autocratic ruler of Prussia and the German Empire. By the acceptance of the theory of the divine right, he finds a means for the fulfillment of his wishes which the rising tide of democracy throughout the empire is menacing. Under these conditions, from a psychological standpoint, the defensive instinct of fear has been very vigorously aroused, and this fear is not far removed from the emotion of hate which, in the minds of many writers, has been the predominant attitude of Germany as represented in the Kaiser, especially toward England. Or, as Prince more definitely puts it, the egocentric sentiment of the Kaiser and his fear for himself and his empire, although possibly subconscious, induces an emotional defense reaction. "This defense reaction is anger and the sentiment of hatred." The chapter headings of the book are as follows: The Kaiser's Antipathy, The Kaiser's Prerogatives, The Kaiser's Divine Right Delusion, The German Autocracy and the Army, The Kaiser's Sentiments, The Kaiser's Self-Regarding Sentiment, Aims of the German Democracy, The Real Cause of the Kaiser's Antipathy, The Kaiser's Antipathy an Obsession and a Defense Reaction. It is inevitable that this well written discussion of the Kaiser's personality will be read with varying feelings. It will doubtless appeal rather to the psychologist and to those familiar with modern psychological methods than to the man in the street. The validity of its conclusions is dependent largely upon the acceptance of the premises, and these may well be open to question. It is, however, from the psychological standpoint a fair, if not generous, analysis of perhaps the strongest personality of our time. It will not, we venture to suggest, prove universally convincing.

Diseases of the Skin. By JAMES H. SEQUEIRA, M.D., Lond.; F.R.C.P., Lond.; F.R.C.S., Eng. Second edition. With 48 plates in color and 238 text figures. Philadelphia: P. Blakiston's Son and Company. 1915.

In the preface to this, the second edition of his book on skin diseases, Sequeira announces that many articles have been rewritten and that there are numerous additions. A series of micro-photographs, illustrating the histology of many common affections, is a new feature. There are four new colored plates and 60 new figures in the text. The micro-photographs are good, but the colored plates impress us as only fair. Most of the figures in the text are well up to modern standards. The book is thoroughly English in tone and spirit, and is not overburdened with a recital of conflicting views. The paragraphs devoted to treatment show conservatism and freedom from discursiveness.

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NEWSPAPERS AND PATENT MEDICINES.

THE JOURNAL has received communications severely criticizing the Boston dailies for their advertisements of patent medicines and medical frauds, and urging it to call the attention of its readers to the matter. An examination of these papers certainly shows that some of them at least are not taking an advanced stand on this subject. In fact, most of them are behind the stand taken by some of the dailies of a section of the country which has recently come in for severe criticism on the part of Boston editors. Thus two years ago the *New Orleans Item* announced that it would not print any medical advertising that the most searching examination found to be "violative of truth" or "void of probability." Nor have Boston and Massachusetts, leaders in so many movements for the public good, been conspicuous, at least in recent years, for an advanced stand in regard to patent medicines. Thus Boston is far beyond New York City. The Board of Health of which last

year adopted an ordinance requiring either the registration of the name of ingredients of all proprietary or patent medicines with the board of health, or, in lieu thereof, the printing of the name of each ingredient "conspicuously, clearly and legibly in English, on the outside of each bottle, box or package in which the medicine or medicinal compound is held, offered for sale, sold or given away." The Louisiana State Board of Health adopted the ordinance *verbatim*, and several Western cities and states have under consideration the enactment of similar legislation. The General Assembly of Louisiana last summer adopted a concurrent resolution approving the campaign of the State Board of Health "to rid the State of Louisiana of the pernicious patent nostrums so widely advertised and sold under misleading and fraudulent pretences as to curative properties"; the General Assembly further commended the action of the Louisiana Press Association for its unanimous endorsement of the State Board of Health in its effort to control the patent medicine evil.

Returning to the newspapers: it is interesting to note that the Louisiana Press Association, in addition to endorsing the fight of the State Board of Health on patent medicine frauds, requested the president of the board to furnish the press of the state a list of these nostrums so that they might be banished from the advertising columns. This action is significant in that it shows that newspaper editors who really desire to exclude fraudulent advertisements from their columns find no difficulty in securing expert advice on the subject. Some American newspapers submit their medical advertisements to the American Medical Association for its opinion before publishing them, just as many newspapers consult authorities on stocks, bonds, mines, etc., before accepting advertisements of questionable concerns.

That most of the Boston dailies do not make any serious effort to exclude fraudulent patent medicine advertisements from their columns will be evident to our readers if they will glance over almost any issue of almost any of them. They will find there numerous cases of advertising "violative of truth" and "void of probability," as well as of numerous nostrums the true character of which has often been exposed, such as Eckman's Alterative, "a mixture of alcohol, calcium chloride and cloves, which every intelligent physician knows is perfectly worthless for the cure of consumption, sold at

an exorbitant price—\$2 for eight ounces—under the cruelly false claim that it will save the tuberculous"; Lydia E. Pinkham's Compound; "Plant Juice"; cures for diabetes, kidney and bladder diseases, foot drafts for rheumatism, asthma cures, hair growers, fat reducers, "flesh builders," etc., etc. Especially numerous seem to be those patent medicines which are ashamed to sail under their true colors and are recommended in the columns entitled "Today's Beauty Suggestions," "The Doctor's Advice," etc.; here we find such "simple" things as "spurmax," "canthox," "cadomene," "hypno-nuclane," "balmwort," "sulphur tablets (not sulphur)," "arbolene," etc.

One of the most interesting examples of the strange bed-fellows which the proprietary medicine and food business makes is frequently to be seen in the advertisements of Sanatogen in the newspapers. Sanatogen, a mixture of 95% casein (better known to the public as cottage cheese) and 5% sodium glycerophosphate (a substance of no therapeutic importance) has been carefully examined by the American Medical Association and the falsity of the claims made for it pointed out. It is a product of German origin, and it is rather amusing to see the large advertisements of Sanatogen, including the enthusiastic endorsement of Sir Gilbert Parker, who has recently been flooding medical men of the United States with anti-German literature.

The history of Sanatogen contains a lesson for physicians, for the latter have contributed not a little to the success of this proprietary food-nostrum; without informing themselves as to its true composition or value, but accepting the statements of the manufacturers, not a few have recommended it to their patients, without any suggestions as to its limitations as a food or its exorbitant price. Unfortunately, other instances of the manner in which physicians have unwittingly aided the exploitation of drugs as patent medicines are to be found. Last spring we noticed in an advertisement of patent medicines at cut rate prices, the name urotropin immediately preceding, we believe, "Var-ne-sis," a typical nostrum of the rheumatism-cure type. Urotropin, of course, is merely a copyrighted name for the U. S. pharmacopoeial hexamethylenamine; as "urotropin" it has been advertised by the owners of the copyright (a German firm) in a manner scarcely less extravagant

than Sanatogen, and it was undoubtedly through the recommendations of physicians that it came to be classed as a patent medicine. Every physician knows that in a limited class of cases, with a correct diagnosis and other proper treatment, hexamethylenamine is a most valuable drug; but he also knows that it would be the merest chance if a layman took it in a case in which it would prove of benefit. The end-result would be the same as with other patent medicines: patients would be dosing themselves with drugs which could not possibly do them any good, and would delay the securing of proper medical advice. It may be added that repeated examinations by the U. S. Government and others have shown that the preparations of hexamethylenamine made by American manufacturers are in every respect the equal of the German product and are sold at a fraction of the cost of the latter. So physicians, by using the German proprietary name, have not only contributed to the introduction of what has been classed as a patent medicine, but have unnecessarily contributed to making the United States still more dependent upon foreign nations for even the simplest drugs. Such instances are, however, not common, and now that the medical profession has realized that it is confronted with a proprietary medicine evil in the same way that the public is confronted with a patent medicine evil, it may be confidently hoped that such instances will become rarer.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

In the issue of the JOURNAL for September 23, we commented editorially on the approaching sixth annual session of the Clinical Congress of Surgeons of North America, to be held in Boston during the week beginning October 25, 1915, and spoke particularly of the series of meetings arranged for the first four evenings of that week. The complete program of these evening meetings has just been issued, and we desire to call it particularly to the attention of the profession.

On the evening of Monday, October 25, there will be first an address of welcome by Dr. Fred Bates Lund of Boston, chairman of the committee of arrangements, followed by the presentation of President William L. Rodman and President-elect Rupert Blue of the American Medical Association. Dr. John B. Murphy of

¹ From Nostrums and Quackery, published by the American Medical Association.

Chicago, the retiring president of the Congress, will deliver an address which will be followed by the inauguration of Dr. Charles H. Mayo as president and Drs. Herbert A. Bruce and Robert L. Dickinson as vice-presidents of the Congress. The exercises will be closed by Dr. Mayo's presidential address.

On the evening of Tuesday, October 26, the following will be the program of papers:—

Thomas B. Hartzell, M.D., Minneapolis: The Dental Path, Its Importance as an Avenue of Infection.

E. H. Sanford, M.D., Rochester, Minnesota: Studies in the Relationship of Amebiasis to Pyorrhcea Alveolaris.

Weston A. Price, M.D., Cleveland: Cinematographic film showing movement of bacteria and amebae.

M. L. Rhein, M.D., New York City: Discussion.

George W. Crile, M.D., Cleveland: Acidosis in Its Relation to Surgery.

Professor Lawrence J. Henderson, Boston: The Nature of Acidosis.

James S. Stone, M.D., Boston: Discussion.

On the evening of Wednesday, October 27, the program of papers will be as follows:—

A. J. Oehsner, M.D., Chicago: Intestinal Stasis and Its Accompanying So-called Toxemia. Discussion by John G. Clark, M.D., Philadelphia; Professor Walter B. Cannon, Boston; Frank W. Smithies, M.D., Chicago.

Symposium: Plastic Bone Surgery (Illustrated by lantern). Fred H. Albee, M.D., New York City; Harry M. Sherman, M.D., San Francisco; John B. Murphy, M.D., Chicago; Charles L. Seudder, M.D., Boston.

On the evening of Thursday, October 28, there will be a symposium on cancer, the speakers on which are still to be announced; and a symposium on military surgery by Dr. George W. Crile of Cleveland, Dr. Harvey Cushing, Dr. Robert B. Greenough, Dr. Edward H. Nichols, and Dr. Robert B. Osgood of Boston.

This program promises a series of exercises of unusual interest and value in addition to the clinical meetings occupying the days,—a program deserving the attention of every practicing surgeon. Owing to the necessary limit of space and accommodation, however, it is impossible that these evening meetings should be thrown open to the profession at large and, therefore, only those who have registered as members of the Congress can be admitted.

ETHER DAY.

THE annual recurrence of Ether Day, which will be observed as usual at the Massachusetts General Hospital on Saturday of this week, October 16, recalls the story of the original demonstration of ether as an anesthetic in the old dome on that day in 1846. It is believed that the last remaining survivor* of those present on that occasion is Dr. Rufus C. Chapman, a dentist of Newcastle, Me. At that time Dr. Chapman had just begun the practice of his profession at Lynn and was fortunate in obtaining an opportunity to be present at Dr. Morton's demonstration. The events of that momentous morning are so familiar that the narrative needs no repetition. With each return of this anniversary, however, it must be realized that this event of such moment in the history of medicine and of the human race, is steadily passing into more remote time, and that already it is almost beyond the immediate recollection of those still living. The annual observance of this occasion, therefore, becomes of increasing importance, since it serves to prevent the oblivion of the immediate incidents and of the persons concerned in the first demonstration of ether anesthesia. It should be the interest and pleasure of every physician who can do so, to attend the morning exercises at the Massachusetts General Hospital next Saturday, of which the program is printed on the last page of this issue of the JOURNAL. The afternoon exercises are to be of the usual commemorative character, with a leading address by Dr. William W. Keen of Philadelphia. It is expected that this address will be published in full in a later issue of the JOURNAL.

MEDICAL NOTES.

DOG MUZZLING REDUCES RABIES IN NEW YORK.—Twelve hundred negligent dog owners were summoned to court during September by patrolmen of the Health Squad for failure to comply with the dog muzzling ordinance. Of these, only 112 were discharged; 832 paid fines, aggregating \$1034.

Naturally, the Department is much gratified at the strong support this ordinance has received at the hands of the city magistrates. That the enforcement of the law has been beneficial to the people of this city is indicated by figures concerning rabies and dog bites. Thus the number of cases of rabies found in animals examined in the Health Department's laboratories decreased from 64 in the second quarter of 1914 to 15 during the corresponding quarter of this year. During the same period a considerable reduction

* Since this was in press we have learned that Dr. Chapman died on Aug. 6, 1912, at the age of 90 years.

was also observed in the number of persons examined for dog bite.

WAR RAISES NEW YORK'S DEATH RATE.—An analysis of the mortality figures compiled by the Department of Health shows that during the past week, there were 77 more deaths reported than during the corresponding week of last year. Over forty of these, however, are accounted for by the increase of the city's population.

The diseases principally responsible for this increased mortality were diarrheal diseases, particularly under five years of age, whooping cough, heart disease and pulmonary tuberculosis. On the other hand, measles, diphtheria, bronchitis and broncho-pneumonia and diseases of the nervous system showed a decrease.

The total number of deaths reported during the week was 1209, with a rate of 10.86 as compared with 11.32 deaths and a rate of 10.58 for the corresponding week of last year. The rate for the first forty weeks of 1915 is 13.37, as compared with 13.81 for the first forty weeks of 1914. According to the statisticians of the Department of Health, the death rate of the city has unquestionably been affected by the change in immigration and emigration that has occurred during the past year as the result of the European War, particularly as the city has lost large numbers of individuals between the ages of 15 to 40 years, *i.e.* at the age period when the death rate is the lowest.

The effect of the war upon municipal vital statistics is also reflected in a report of the city of Hamburg for March, 1915, which has just reached the Department of Health. In that city there was a falling off of 210 marriages during the month, as compared with the previous March, and a difference of 2.2 in the marriage rate. The Hamburg birth rate for March, 1915, was 2.6 lower than the average for the previous ten years.

PREVALENCE OF MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for Sept. 24 states that during the month of August, 1915, there were in Ohio 20 cases of cerebro-spinal meningitis, 100 of poliomyelitis, 91 of smallpox, and 581 of typhoid fever. During the same period, there were in Maryland 23 cases of poliomyelitis and 555 of typhoid fever. In South Carolina there were 66 cases of pellagra and 250 of typhoid. There were 50 new cases of pellagra in Nashville, Tenn., during the week ended September 4.

FOOT AND MOUTH DISEASE IN CHICAGO.—Report from Chicago on October 4, states that foot and mouth disease has reappeared in one of the large herds in the local cattle yards. 170 animals were slaughtered on that day in an effort to check the infection.

NEW YORK RADIUM INSTITUTE.—Report from New York states that on October 5, contracts

were made in that city for the purchase of \$120,000 of radium for the New York Radium Institute which is to be established on 72nd Street in that city. This institute will devote itself to the philanthropic treatment of cancer and other diseases for which radium may be a therapeutic agent, on the analogy of the radium institute of London.

A NEW SOCIETY FOR THE CONTROL OF FEEBLE-MINDEDNESS.—There has recently been formed a society interested in the care and the control of the feeble-minded, calling itself "The Committee on Provision for the Feeble-minded" and expressing its purpose to be "to disseminate knowledge concerning the extent and menace of feeble-mindedness and to suggest and initiate methods for its control and ultimate eradication from the American people." The membership of the society includes members of State boards and commissions from five States—Indiana, Pennsylvania, Massachusetts, New Jersey, Virginia; superintendents and board members of institutions for the feeble-minded in New York, Ohio, Pennsylvania, Massachusetts, New Jersey and Minnesota; representatives of the National Committee for Mental Hygiene, the Eugenics Record Office, the Wister Institute of Anatomy of Pennsylvania, the Vineland Laboratories, Johns Hopkins University and Stanford University; Judges of Juvenile Courts from New York and New Jersey; and others who have been prominent in doing or supporting social welfare work.

The executive work of the committee will be in the hands of Mr. Joseph P. Byers, formerly Commissioner of Charities and Correction of the State of New Jersey. Mr. Alexander Johnson, the former Director of the Extension Department at Vineland, now merged into the Committee on Provision, has become the field secretary of the new organization. The committee includes: Dr. Walter E. Fernald, Superintendent of the School for Feeble Minded at Waverley, Mass. The work of the Committee on Provision is being financed by private subscriptions from those interested.

YELLOW FEVER AT PANAMA.—Report from Panama on October 5, states that a death from yellow fever occurred on that day at the Ancon Hospital. This is the first case of the disease which has occurred in the canal zone for nearly eight years.

BOSTON QUARANTINE STATION.—On October 4, a conference was held in Boston between Dr. L. E. Cofer, assistant surgeon general of the United States Public Health Service, Dr. Allan J. McLaughlin, Massachusetts State Health Commissioner, Dr. F. X. Mahoney, Boston Health Commissioner, Dr. S. B. Grubbs, federal quarantine officer of the port of Boston, Mayor Curley and others, to determine the purchase price which the National Government shall pay to the city for the quarantine station on Gallop's Island. It is estimated the total cost will be \$250,000.

CANCER CONTROL IN MISSOURI.—The Department of Preventive Medicine of the University of Missouri, Columbia, Mo., has recently issued a special cancer bulletin (Medical Series No. 9) containing an article by Dr. F. A. Martin, instructor in pathology, on the early diagnosis and treatment of the disease. The purpose of the bulletin is to call the attention of the public to the work in popular education about cancer which is being done by the American Society for the Control of Cancer, by the American Medical Association, and by other national and state organizations. The importance of early surgical consultation is strongly emphasized and the attention of the public is directed towards the common early symptoms and signs of cancerous disease in various parts of the body. The bulletin closes with an emphatic warning against quacks and their spurious testimonials, pointing out that their method of deception is based chiefly on erroneous diagnosis.

LONG ISLAND COLLEGE HOSPITAL.—The fifty-seventh annual session of the Long Island College Hospital Medical School was opened at the Polhemus Memorial Clinic on Tuesday, September 28. The principal address on this occasion was delivered by Dr. Horace David Arnold, dean of the Graduate School of Medicine of Harvard University.

CONTAMINATION OF CLOTHING THROUGH PUBLIC LAUNDRIES.—Among matters of public health which are arousing interest at this time, the question of the possibility of infection through public laundries is receiving attention. Dr. Deaderer of the committee on occupational diseases of the woman's department, National Civic Federation, reports in *Public Health* the results of his investigation of various laundries in New York. He considers the danger of infection to be, first to the employees of the laundry from soiled clothing and second, the contamination of the clean clothing with the soiled. The clean clothing which has been washed in boiling water and passed through the mangles at about 300° temperature may be considered sterilized but the conditions have been found very faulty in protecting this clothing from the soiled clothing taken into the laundry. In the majority of laundries it has been found that the clean clothes are manipulated in the same rooms with soiled ones, and often in close proximity, and the same table is used in places for receiving and delivery.

In France the matter has received much attention. Formerly the great washhouse boats were a feature of Seine scenery in and near Paris. They were an ancient institution, dating from 1623, but in 1855 were so numerous that contamination of the river from them was feared and they were prohibited. In 1905 the French Government made rules for the country which included impermeable bags for reception at the house and transportation of the soiled linen, disinfection before being handled by the workers, gowns for the workers like those in infectious hos-

pitals, washing of hands and face, separation of receiving and delivery rooms, prohibition of eating in the sorting rooms and vaccination certificates for the employees.

HEALTH OF SAILORS IN THE BRITISH NAVY.—There have recently been published figures which show that the percentage of sickness among sailors in the Royal Navy of England from 1902 to 1912 has decreased 10%. The mortality rate has fallen from 5.9 to 3.3. The improvement is accorded to general advance in education, the increased ventilation of ships and the institution of lectures on health.

CONSANGUINITY IN RAT BREEDING.—A press report from Philadelphia on September 29, describes recent researches by Dr. King at the Wister Institute of Anatomy and Biology at the University of Pennsylvania in the breeding of rats, especially with reference to the effect of consanguinity. Dr. King is quoted as follows:

"In-breeding, corresponding to intermarriage in the human family, does not result in injurious effects. On the contrary, we have developed a type 30% larger physically by disregarding consanguinity.

"For 20 generations I have intermarried a brother and sister rat, with the result that I got a rat larger and better physically in every way than the first ones. A rat is a mammal and man is a mammal; therefore, it is not too much to think that the same principle can be applicable to each.

"I firmly believe that if close relatives, carefully selected and of a higher type, were to marry, the result of the union would be a higher type of offspring than from the intermarriage of two other people. The opinion regarding the degeneracy of the offspring of such a union exists because the only races who intermarry are degenerate races, and therefore, you get a race of even greater degeneracy."

As a matter of fact the traditional prohibition of consanguinity in intermarriage is presumably dependent on the greater likelihood in such marriages of intensifying a common family trait. The rapidity with which such traits may become intensified is likely to carry even an advantageous trait to such excess that it becomes disadvantageous by reason of its over-emphasis.

A subsequent press report quotes a comment upon this work of Dr. King by Dr. William Ernest Castle, professor of zoology at Harvard University. Dr. Castle has also experimented in rat breeding for a number of years and states as his experience, that with in-breeding, the progeny after a few generations becomes in most instances inferior. Of the application of such experiments to human beings, he is quoted as saying:

"A careful study of statistics obtained in cases where close blood relations have intermarried has shown that there has been a physical

and mental loss in the offspring. There are sound eugenic reasons why first cousins should not marry if the best physical and mental beings are to be produced.

"It certainly would not be justifiable to say that if in the interbreeding of rats healthy specimens are produced, the same reasoning can be applied in the breeding of human beings. Experiments and tests do not justify it."

ERADICATION OF HOOKWORM DISEASE.—The first part of the annual report of the Rockefeller Foundation issued in New York on September 23, describes the work of its international health commission up to the close of 1914 in investigation and eradication of the hookworm disease. After its initial work in the United States the commission undertook two further tasks: first, the extension to other countries of the work of eradicating hookworm disease as opportunity should offer and second, the following up of its treatment and cure through the establishment of agencies for the promotion of public sanitation and the spread of knowledge of the science of medicine.

"The relief and control of the disease is an undertaking of enormous magnitude, as the infection belts the globe in a zone on both sides of the equator, 66 degrees wide and with a population of about 900,000,000.

"Thus far plans have been adopted and work begun for the control of the disease in British Guiana, Antigua, Trinidad, St. Lucia, Grenada and Egypt.

"In addition to the work undertaken in the British colonies, the commission has responded favorably to invitations from several Central American countries and work has been inaugurated in Panama, Nicaragua, Costa Rica and Guatemala.

"The report makes it clear that the international health commission has not undertaken to eradicate the disease in any country. The accomplishment of this result, it is stated, will require the operation of permanent agencies working over long periods, and this should be the work of the governments interested. The commission's sphere of service, it is stated, is to coöperate with governments of foreign countries in organizing and making effective their own agencies.

"In this spirit, the report says, the commission has accepted the invitation of 11 foreign countries during the year to coöperate in the relief and control of the disease.

"In addition to carrying on its work in foreign countries, the international health commission has also undertaken to complete the program of the Rockefeller sanitary commission for the eradication of the hook worm disease in the southern states. This program, the report states, did not contemplate complete eradication under the supervision of the sanitary commission, but aimed rather at a comprehensive demonstration in each state, first of the presence of the disease, and

second, of the method of treating and preventing it. This demonstration is now entering its final stage with the inauguration of the so-called intensive community work, by which, in a limited number of typical communities in each state, it is hoped to show convincingly the possibility of treating every infected person, and at the same time of preventing soil pollution—the only way of preventing the recurrence of the disease.

"In concluding the report, the point is emphasized that the whole of the commission's work is essentially educational, and that its best result is in securing the coöperation of the people in the work of bringing this disease and all other preventable diseases under control."

EUROPEAN WAR NOTES.

APPOINTMENT OF DR. PENHALLOW.—It is announced in a report from London on Oct. 1 that Dr. Dunlap Pearce Penhallow of Boston has been appointed chief surgeon of the American Women's War Hospital at Paignton, South Devon, England, to succeed Dr. Howard Beal. The assistant surgeon will be Dr. Fred C. Collier of Boston.

CHOLERA IN AUSTRIA AND GERMANY.—During the week ended August 7, there were eleven cases and five deaths of Asiatic cholera at Trieste, Austria. During the same week there were in Germany 154 cases and 40 deaths of cholera and 2 cases of typhus fever. The majority of the cholera cases were among prisoners of war. The two patients with typhus were German soldiers, one at Breslau and one in Interfranken, Bavaria. Other cases of typhus occurred during the same period among prisoners of war in Königsberg, Lunenberg, Potsdam, Schleswig and Baden.

In the issue of the *Lancet* for Sept. 18 is the following statement of the prevalence of Asiatic cholera in Europe during the past year:

"From information which we have obtained it appears that, since last September up to the present time, some 20,000 cases of cholera have been reported in the Austrian Empire, about a third of them proving fatal, and of these the largest proportion have occurred in Galicia and Bukowina, in the area in which military operations on a large scale are now being carried out. At first the disease made its appearance among the prisoners interned, but of late the majority of the cases have been recorded among the civil population. In the month of July of this year 6000 attacks occurred, mostly civilians, in the two above-named provinces. In Hungary more than 3000 cases have come under notice, principally among the military; and in Croatia-Slavonia about 1700 persons have been attacked. In Bosnia and Herzegovina there have been about 700 cases this year. The strain of infection, however, does not seem to be of a particularly virulent kind, and this lends confirmation to the opinion that Austria received the disease

from Southern Russia, where of late years cholera has been prevalent in a mild form. Sick and wounded soldiers from the battlefields of Galicia carried the infection back with them to various other parts of the Austrian Empire, and groups of cases developed in Vienna, Budapest, and other large cities. In the same way cholera was brought by Russian prisoners into Germany, the first cases being reported in November of last year in the Berlin district. This year, in July, there was a marked increase in the number of cases in Germany, and in the last week of that month 215 attacks were recorded, 200 of them among interned prisoners and only 15 among the soldiers guarding them. Cholera has also appeared at Frankfort-on-Main and at various places in the provinces of Hesse-Nassau, Prussian Silesia, Posen, and Pomerania, as also in the kingdoms of Saxony and Württemberg. As might have been expected from what we know of German methods, anti-cholera inoculation has been largely used to protect the army fighting in the eastern war zone; the cases reported among the German soldiers being older men and those less fitted for active service, who were engaged in the less laborious task of guarding the prisoners' camps and who had not been inoculated. The anti-cholera inoculation no doubt accounts for the comparative absence of the disease from the German army in the field. This protective measure has also been employed by the Austrians, but probably less efficiently. In this connection it is of interest to learn that, although the inoculation was ordered to be carried out in the Austrian force about to be led against the Serbians, the general in command alone, of all his staff, refused to submit to the operation, and it is reported that he was the only soldier of that force who had so far died from cholera. Little definite information has come to hand from Russia as to the incidence of cholera of late in that country, but the fact that Russian prisoners conveyed the disease to Austria and Germany is evidence that it, too, has suffered. It is known, however, that just before war broke out last year cholera was prevalent in the Russian government of Podolia, not far from the Austrian frontier, and also that cases had occurred in Warsaw. During the present year it has been officially announced that the disease was present during August in the district of Kherson, not far from the Black Sea, and also Tiflis and other places in the Caucasus. As regards Turkey, we know that cholera was present during part of 1914 at Adrianople, Constantinople, and in the Dardanelles, at Gallipoli and Tschanak among the Turkish troops. At Smyrna, Trebizon, and other ports of Asia Minor cases were also reported last year, but there is no information available concerning the incidence of cholera in Turkey during 1915. Quite recently the disease has reached Italy, cases having occurred at Venice and Leghorn, probably due to infection from an Austrian source. So far as we know, there have been no

reported cases of cholera in the war zone in Western Europe. Although under different circumstances the presence of epidemic cholera in Eastern Europe might have caused some uneasiness in this country, the present danger may be regarded as comparatively insignificant, for the ports of Northern Europe, such as Libau and Hamburg, at which poorer class travellers from Russia embark for England, are closed; and the same applies generally as regards Austrian and Turkish travellers, to the corresponding ports in the Mediterranean. The season, too, is getting late, for cholera infection brought to our shores late in the year has in the past failed to effect a lodgment."

A YEAR'S RED CROSS WORK.—Mr. Sherman M. Craiger has recently published in the daily press a review of the work accomplished by the American Red Cross in Europe from the outbreak of the war until the withdrawal of its units on Oct. 1.

"The American Red Cross, at the outbreak of the war in August, 1914, tendered to the different countries involved the services of surgeons and nurses, together with supplies and equipment for hospitals, including outfits for sterilization. The offer was gratefully accepted, whereupon Congress consented to pass an act authorizing the society to take over a ship, under our own registry and flag. In answer to an appeal made in the press came the proffer of a Hamburg-American steamer, and it was accepted and chartered as the 'Red Cross' relief ship. Preparations were surrily made for its officering and fitting out, \$10,000 worth of absorbent cotton, gauze and other supplies being taken aboard at New York.

"As illustrative of the thoroughness of the society's organizations and methods, sixty of the nurses and surgeons, comprising Units D and F, were landed in England, as originally planned, at the end of September.

"Under Miss Lucy Minnigrode, as supervisor, the nurses for Russia, comprising Unit C, journeyed by train to London and Dundee, sailing from the latter point Oct. 2 for Bergen, and going thence to Stockholm and Petrograd by rail.

"From Portsmouth, England, the Red Cross landed the nurses in Units A and B in France, as well as the supplies for the American Ambulance Hospital in Paris.

"On Oct. 10 the sections for Germany and Austria were put ashore at Rotterdam, and travelled by rail via Berlin. Unit G, which was ordered to Kosel, in German Silesia, was in charge of Dr. Bial F. Bradbury, who was given a hospital building accommodating 100, with a first-class operating room.

"From Berlin the nurses for Austria were ordered to Vienna and Budapest, respectively, the former receiving Unit K, under the direction of Dr. Cary A. Shoddy, and the latter Unit E, with Dr. Charles E. MacDonald in charge.

"The Serbian unit of fifteen persons left New York on a Greek steamer.

"To send these 171 surgeons and nurses abroad, with adequate equipment, uniforms and other necessities; to pay their traveling expenses by land and sea both in this country and Europe, including salaries of \$60 a month for the nurses and \$166 to \$250 for the surgeons; and to bring them home to the United States at the end of six months, cost about \$1200 per capita, including the cost of the *Red Cross*, the relief ship on which they sailed, a total of \$205,000.

"Some conception of the stupendous amount of work done from then on may be gained from the following summary of services rendered to each belligerent Government:—

	SHIPMENTS.	VALUE.
Austria	11	\$97,683
Belgium	12	96,708
England	13	87,845
France	24	216,155
Germany	8	182,795
Italy	2	14,451
Montenegro	3	15,526
Poland	1	7,200
Russia	9	89,613
Serbia	8	130,867
Turkey	2	12,536

"In speaking of the cargoes sent, Miss Mabel T. Boardman, chairman of the National Relief Board of the American Red Cross, said that almost every conceivable thing which could give comfort to the sick and wounded had been donated to the society.

"For example, over 10,000,000 cigarettes reached us for the Allies and German-Austrian armies.

"More than a million yards of gauze have been contributed, 211,000 hospital uniforms, over a million surgical dressings, 31,000 pounds of anesthetic, 892,000 pounds of cotton, absorbent and otherwise, 209,000 articles of clothing for refugees, 70 cases of typhoid and tetanus antitoxin, 10,000 smallpox vaccine tubes, 20,000 mufflers and 28,000 pairs of socks.

"Money was donated for the sanitary commission which went into the Balkan States to fight typhus. We purchased and shipped great quantities of supplies for them, including 358,000 pounds of sulphur, 700,000 bichloride tablets, 7000 gallons of kerosene to use in spraying for the destruction of typhus-carrying vermin, 5600 pounds of formaldehyde, 12,200 doses of cholera vaccine, 500 whitewash brushes, 3000 rolls of ribbon paper to be used in pasting windows to make rooms air-tight for fumigation, hundreds of barrels of old flour for making paste, many spray pumps, 35,000 gallons of phinotas oil, 70 bathtubs, 50 step-ladders and 11 automobile trucks.

"Of the designated funds which we have distributed, those to be sent to and spent in and for Germany have been in excess of all others. My estimate is that the Germans in this country have given not less than two millions direct for

relief in their Fatherland, and in one respect this must be classed as an American contribution.

"We have spent over a million dollars in actual cash for Belgium, and about half as much more for the other fighting nations in Europe."

"In the sure knowledge that a maximum amount of good has been accomplished with the means at its command, the Red Cross, at this writing, is preparing to recall the American personnel in Europe. On Aug. 25 three nurses arrived here from Kiev, Russia, where they had served practically a year, twice their enlisted term. Fourteen other detachments sailed for home during September, and it is expected that by the middle of October only two of our units of surgeons and nurses will be left to represent the American Society in the Old World. They are stationed in Belgium, where the need is of the greatest, and will be continued as long as funds are available."

WAR RELIEF FUNDS.—On Oct. 9 the totals of the principal New England relief funds for the European war reached the following amounts:

Belgian Fund	\$274,061.10
St. George's Fund	45,674.19
Surgical Dressing Fund	1,805.00
Red Cross Fund	1,362.58
War Children's Fund	347.50

BOSTON AND NEW ENGLAND.

BEQUESTS FOR CANCER RESEARCH.—It is announced that a bequest of \$25,000 has been given to the cancer commission of Harvard College by will of the late William Endicott. Another bequest of \$23,250, from the estate of Julia M. Moseley, has been made for the work of the cancer commission in the city of Boston.

EXAMINATION FOR MENTAL DEFICIENCY IN STATE PRISON.—The State Board of Insanity, at the request of the Massachusetts Prison Commission, has undertaken a psychiatric and psychological investigation at the Massachusetts State Prison in Charlestown with the purpose of determining the number of psychotic and defective individuals at present confined in the institution, and the results obtained from examination of the first group of criminals is published in the latest report of the State Board of Insanity (Bulletin No. 13, September, 1915). The report states as follows:—

"The object of the psychological study is to determine the intellectual status of the subjects, and to discover, if possible, mental reactions characteristic of criminal and delinquent individuals. To determine the intellectual status, the Yerkes-Bridges Point Scale (devised at the Psychopathic Hospital by Dr. R. M. Yerkes and J. W. Bridges) is used, supplemented by the Binet-Simon Scale when diagnosis by the Point Scale is uncertain.

"The diagnosis of mental deficiency, or feeble-mindedness, is made on the basis of a positive history and a low intellectual grading. No subject is diagnosed feeble-minded unless he grades below twelve years' mental age by the Point Scale. By using the twelve-year Point Scale age as the border line for feeble-mindedness, instead of the twelve-year Binet age, which is the standard limit commonly accepted, we ensure a diagnosis free from error, as it has already been proved that a subject who grades twelve years by the Point Scale must grade eleven or less by the Binet Scale. In our diagnosis of feeble-mindedness, we have followed the standard that a subject who grades between eight and twelve years is classified as a moron, and a subject who grades between three and seven years is classified as an imbecile.

"By the end of July, 1915, 100 cases had already been examined by Dr. Stearns, following the alphabetical order in which the inmates are catalogued at the prison. Of this group, 47 were given a psychological examination, because their social, criminal and medical histories were found to be suggestive of mental deficiency.

"Twenty-three of the 47 cases have been diagnosed as feeble-minded and 5 as border-line cases. Of the 23 feeble-minded cases, 2 fall in the imbecile group, 8 are classified as low-grade morons and 13 as high-grade morons. All of these 23 defective subjects are committable cases to institutions for the feeble-minded.

"A further, intensive psychological study is to be made on the inmates of the State Prison with the hope of finding characteristic reactions of the criminal and delinquent individuals, and a comprehensive report of the psychological findings will be prepared in the course of a year, after the study of all the inmates of the institution has been completed."

Massachusetts Medical Society.

ABOLITION OF WRITTEN EXAMINATIONS.

At a special meeting of the Supervising Censors, held October 6, 1915, it was voted in accordance with the authority conferred by Chapter V, Section 1, of the by-laws, that the written examination previously required of applicants for fellowship in the Society, be abolished. The suggestion marked No. 3, of the special committee appointed by the Supervisors at their annual meeting in 1914, and published in the JOURNAL, June 24, 1915, page 952, was adopted by vote. It is as follows:—

"3. Abolition of written examination; and reliance on the attainment of a degree from a school recognized by the Society, and the passing of the State Board as presumptive evidence of preliminary training; with reliance on the oral examination by the Censors to check up any doubts in individual cases, the chief function of

the Censors being to determine whether or not the candidate gives evidence through his record and his general bearing that he is desirable as a member."

It was voted further that the committee appointed last June be requested to prepare a set of examination papers that may aid the censors in conducting the oral examinations.

Voted by the Council, October 6, 1915. That the Librarian be instructed, until otherwise ordered, to furnish the business manager of the BOSTON MEDICAL AND SURGICAL JOURNAL by December first of each year, with the number of members of the Society entitled to receive the JOURNAL on March 1 of that year, and that that number be considered the minimum number of journals to be paid for by the Society in each respective year.

Voted: That the next annual meeting of the Massachusetts Medical Society shall be held in Boston, June 6 and 7, 1916.

(Signed) W. L. BURRAGE, M.D.,
Secretary.

October 7, 1915.

Miscellany.

PATENT MEDICINE PROSECUTIONS.

In another column of this issue of the JOURNAL we have commented editorially on certain aspects of the patent medicine problem in its relation to the daily newspapers. It is interesting in this connection to note that two bills of information have recently been filed in the United States District Court by the local United States District Attorney, one against the Lydia E. Pinkham Medicine Company of Lynn on the charge of violation of the pure food and drug act, and one against J. M. Grosvenor and Company for similar violation in the shipment of Bell-Cap-Sic plasters. In the former bill it is alleged that a shipment of a dozen bottles of the Pinkham Vegetable Compound was fraudulently labeled as to medicinal properties.

The United States Department of Agriculture has recently issued a statement of over 50 legal actions which it has successfully terminated against patent medicine manufacturers for fraudulent claims as to the curative powers of their products. These actions have been conducted under the Shirley Amendment to the food and drugs act, which prohibits false and fraudulent claims as to the curative or therapeutic effects of drugs or medicines.

"Criminal prosecutions against the manufacturers were brought in 25 cases, but in 31 instances the falsely and fraudulently labeled medicines were seized while in interstate commerce. Claims made by the manufacturers for the curative powers of these preparations ranged from tuberculosis, smallpox and diphtheria, to coughs, colds and scalp diseases. A number of other criminal prosecutions and seizures are pending in various Federal courts throughout

the United States because of alleged violations of the Shirley Amendment, similar to those which have already been tried. The officials charged with the enforcement of the Food and Drugs Act are of the opinion that the evils of the patent medicine business can be stopped only by the most drastic action.

It is pointed out that traffic in medicines for which false and fraudulent claims are made is not only an economic fraud of the worst kind, in that a worthless preparation that costs but a few cents is frequently sold for a dollar or more a bottle, but that health, and even life, is endangered by failure to secure the service of a physician in such serious diseases as tuberculosis, diphtheria, pneumonia and scarlet fever, until too late, because reliance may have been placed in the curative powers of some worthless preparation which is claimed to be a never-failing remedy. The deluded victim may not realize his danger until the disease has reached a stage too far advanced for even the ablest physicians to cope with it. Effective treatment depends in most cases on applying it during the early stages of the disease.

The Houchens Medicine Company, of Baltimore, Md., pleaded guilty to the charge that a preparation called "Family Physician" and shipped by them into interstate commerce, was falsely and fraudulently labeled. Among the many diseases for which this medicine was recommended by the manufacturers in statements appearing on the labels and accompanying circulars, were diphtheria, scarlet fever, typhoid fever, smallpox, bronchitis, neuralgia, croup and all diseases of the throat and lungs. The following quotations from the label, carton, or circular are interesting: "The Public is hereby assured that this is the Genuine and Original Family Physician. . . For fever you need not give anything else but this Medicine, it will keep the rash out itself. . . For cases of Small Pox take plenty and often—Use freely. Give no hot teas, just give the medicine and what pimples are under the skin will come out; the rest will be carried off by the medicine. . . Also a wonderful and positive remedy for dyspepsia, keeps measles out nicely, regulates the bowels without trouble, and by purifying the blood prevents your liability to disease."

Analysis of the product, which was claimed by the manufacturer to be effective in the treatment of so many virulent and contagious diseases, as well as a variety of minor ills, showed that it was a syrup containing 19.2% non-volatile matter, 8.9% alcohol, anise, and a vegetable cathartic drug. The Government, therefore, charged that the medicine did not contain ingredients or medicinal agents effective for the relief and cure of the diseases which it was claimed to cure. The court imposed a fine of \$75.

A plea of guilty was entered by H. A. Ingham and Company of Vergennes, Vt., to the charge that statements and claims as to curative powers of a product called "Dr. H. A. Ingham's Vege-

table Expectorant Nervine Pain Extractor" were false and fraudulent. An analysis of a sample of the product by the Bureau of Chemistry showed the same to contain alcohol, 86%; opium alkaloids, camphor, capsicum, and vegetable extractive matter. The Government, therefore, alleged that the medicine did not contain ingredients or medicinal agents effective, as the labels or circulars asserted, to subdue raging fever, or to cure typhoid fever, lung fever, scarlet fever, rheumatic fever, cholera, dysentery, sunstroke, diphtheria, bleeding at the lungs, nervous exhaustion, or piles, or to prevent fits of apoplexy and epilepsy when coming on, or to heal without inflammation or suffering all wounds, sprains, or burns, or to break up a felon, or to cure congestion of the lungs, pleurisy, fits of apoplexy, chronic rheumatism, paralyzed limbs, and croup.

It was also alleged by the Government that the statements "For teething and restless children, it is not only safe and harmless, but positively beneficial; it agrees with the most tender child or feeble infant," were false and misleading in that they were of such nature as to mislead the purchasers into the belief that the article contained no harmful or poisonous ingredient, whereas, in fact it did contain morphin and other opium alkaloids of a poisonous and deleterious nature, such as might prove harmful and deleterious to the health of tender children and feeble infants, and other persons, if consumed by them. The court fined the defendant \$100.

Four thousand and ninety-two bottles of "Father John's Medicine" were seized in Philadelphia, Pa., it being alleged in the libel that the labels on the bottles and on the pasteboard packages containing the bottles bore statements regarding the curative effects of the medicine that were false and fraudulent. Claims were made by the manufacturers for the efficacy of the medicine in the treatment of consumption, coughs, colds, croup, asthma, bronchitis, sore throat, whooping cough, pneumonia, catarrh, rickets, and a number of other ailments. A judgment of condemnation and forfeiture was entered, and it was ordered by the court that the product be delivered to Carleton and Hovey Company, Lowell, Mass., upon payment of all the costs in the proceedings and the execution of a bond in the sum of \$5,000, to insure that the goods would not be sold unless truthfully relabeled.

A verdict of "guilty" was rendered against the American Laboratories, a corporation located at Philadelphia, Pa., for shipping into interstate commerce a product called "Bad-En Salz," which it was alleged was falsely and fraudulently labeled. An analysis of a sample of the product showed that it consisted of common salt, Glauber salt, baking soda, and a small amount of tartaric acid. It was claimed by the manufacturers that this preparation reproduced the medicinal properties of the great Europea springs famous for centuries for the cure of di-

eeses of the stomach, intestines, liver, kidneys, or bladder, and that it represented the medicinal agents obtained by the evaporating of the water from famous European springs. The Government alleged, among other things, that these claims were false and misleading. It was also alleged that the statements in the circular indicating that the preparation contained ingredients or medicinal agents effective for dissolving gall-stones, for the prevention of gastritis, for curing diabetes, for preventing or checking chronic inflammation of the kidneys, and for relieving catarrh of the bladder, were false and fraudulent. A fine of \$100 was imposed by the court."

Correspondence.

A CHINESE AUTOPSY.

CHANGSHA, HUNAN, CHINA, August 29, 1915.

Mr. Editor: It may be of interest to your readers to hear a word about the first official autopsy ever performed in this section of China. The absolute refusal of the Chinese to permit post-mortem examination has been a major handicap in the development of western medical education and practice, as not alone were autopsies impossible but material for dissection was unavailable. The first real step of progress was the proclamation of the Board of the Interior of the central government at Peking in 1913 declaring that autopsies and post-mortem dissection for educational purposes were legalized. Thus, for the first time in China, post-mortem examination had legal sanction.

Following this in the chief open ports such as Hankow, Shanghai, Canton and also in Peking, post-mortem examinations were soon initiated. But in the interior popular superstition and prejudice are even yet proof against governmental mandates.

Changsha, the site of the Hunan Yale College of Medicine and Hospital, is the capital of a province inhabited by 22 million people. Changsha has been an open port for little more than a decade, and in fact the first foreigner penetrated within the Changsha city wall at the peril of his life less than fifteen years ago. With these bare facts in mind, it is worthy of remark that the first autopsy in Hunan has been performed. The conditions and surroundings were striking in the extreme.

A body was found on the street by the police, and as no relatives or friend could be found, the suspicion of foul play was entertained. A representative of the Commissioner of Police, therefore, waited on Dr. Yen, physician-in-charge of the Yale Hospital, and requested a medical certificate of the cause of death. A formal post-mortem examination was quickly arranged for the following morning at eight o'clock at the municipal poor house, east of the city wall.

Promptly at eight o'clock on Friday morning, the 20th of August, Dr. Yen, Dr. Young and myself arrived at the poor house. This is a large and excellently run institution where the indigent population is provided with work in weaving, basketry and other industries, under conduct of the police. A school is also maintained for poor children. After diligent inquiry we found that the suspected victim of foul play had been buried the night before. In fact the messenger of the Police Commissioner ordering the body held for autopsy, who should have arrived the afternoon before, arrived after we did. We determined at least to inspect the grave, so we headed a procession of police officials, beggars, farmers, coolies carrying instruments, basins, etc., out into the rolling grave-covered hills across the railroad east of the city wall.

It was a mid-August morning and the sun beat down through helmet and umbrella as only a Chinese sun can do. We held council on the grave and finally sent for a detachment of police and a crew of grave diggers. The body was exhumed, the heavy coffin lid laid across two granite tomb stones a thousand years old or more, formed a convenient table. Police, armed with bayoneted rifles formed a large circle. With punksticks burning about us and a coolie swinging a sprinkling can of disinfectant like a large censer, the work proceeded.

The cause of death was ascertained in all probability to be heat stroke superimposed upon an extreme fatty degeneration of the liver. Extensive specimens were secured and the body re-interred. The representative of the police then made an address explaining the importance of determining the cause of death in such cases and Dr. Yen followed with a statement of the need of such work for medical education. The coffin was then sealed with long strips of paper showing that it had been opened by court order. As we returned toward the east gate, we passed a huge poster on a mud wall, issued by the civil governor of Hunan Province at the request of the Commissioner of Police, authorizing the autopsy under the proclamation of 1913.

Thus was established in Hunan a precedent for autopsies and human dissection. Its value to the Hunan Yale College of Medicine can hardly be exaggerated.

Very truly yours,

ALFRED C. REED, M.D.

THE NATURE OF THE NEUROTIC.

SPRINGFIELD, MASS., September 30, 1915.

Mr. Editor: The reading, in today's JOURNAL, of your description of a new theory of the neurotic, by one Adler, a disciple of Freud, but apparently purged of Freudian filth, recalls the description of a proprietary article, where powdered clay masquerades in the verbiage of levigated anhydrous argillaceous mineral matter. But as some pith is always found among the sundry divers as's and whereas's of a legal brief, so we are delighted to find among Adler's mingled "subnormal functions," "organic inferiorities," "defective activities," "self-maximizations," "full masculinities," etc., a recognition of the fundamental fact, long recognized by non-rainbow-chasers, that the neurotic is just a plain damn fool, of varying degree, sometimes permanently, sometimes temporarily, unable to control or withstand the multiple stimuli of life, be they endogenous or exogenous.

Very respectfully yours,

PHILIP KILROY, M.D.

NOTICE.

UNITED STATES NAVY MEDICAL CORPS.

The next examination will be held November 15, 1915, at Washington, D. C.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Norfolk, Va.; Charleston, S. C.; Great Lakes (Chicago), Ill.; Mare Island, Cal., and Puget Sound, Wash.

Applicants must be citizens of the United States, and must submit satisfactory evidence of preliminary education and medical education.

The first stage of the examination is for appointment as Assistant Surgeon in the Medical Reserve Corps and embraces the following subjects: (a) Anatomy, (b) physiology, (c) materia medica, (d) general medicine, (e) general surgery, and (f) obstetrics. The successful candidate then attends a course of instruction at the Naval Medical School, during which course he receives a salary of \$2600 per annum, with allowances for quarters, heat and light, and at the end of the course, if he successfully passes an examination in the subjects taught at the

school, he is commissioned an Assistant Surgeon in the navy.

Full information with regard to the physical and professional examinations may be obtained by addressing the Surgeon General of the Navy, Navy Department, Washington, D. C.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING OCTOBER 2, 1915.

No contributions for the week ending October 2, 1915.

Previously reported receipts..... \$7866.84
Total disbursements..... 7310.04

Balance \$ 556.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

NOTICES.

MASSACHUSETTS GENERAL HOSPITAL.

Demonstrations in the Surgical Amphitheatre.
"Ether Day," October 16, 1915.

The demonstrations will be carried out on the time scheduled regardless of attendance.

1. DR. G. A. LELAND, JR. "Mobilization of the Knee in Cases of Fractured Femur." 10.00 A.M.
2. DR. F. G. BRIGHAM. "The Allen Treatment of Diabetes in the Out-Patient Department." 10.10 A.M.
3. DR. O. F. ROGERS, JR. "The Allen Treatment of Diabetes in the Wards." 10.20 A.M.
4. DR. C. J. WHITE. "Food as a Possible Etiological Factor in Eczema." 10.30 A.M.
5. DR. HUGH CABOT. "Demonstration of the Lesions Produced by Different Types of Kidney Infections." 10.40 A.M.
6. DR. W. E. PAUL. "Injuries to Peripheral Nerves." 10.55 A.M.
7. DR. C. A. PORTER. "The Results in Cases of Peripheral Nerve Surgery." 11.10 A.M.
8. DR. C. L. SCUDDE. "The Surgical Treatment of Chronic Duodenal and Gastric Ulcer." 11.25 A.M.
9. Operations by the Surgical and Special Services. 11.40 A.M. to 1 P.M.

The Out-Patient Department, Pathological Laboratory, Zander Room and X-Ray Department will be open for inspection.

ETHER DAY ADDRESS.

Members of the medical profession are invited to attend the Ether Day address by Dr. William Williams Keen, subject, "The Dangers of Ether as an Anesthetic," on October 16, 1915, at 4 P.M., to be held in the lower out-patient amphitheatre on Fruit Street, Massachusetts General Hospital.

HARVEY LECTURE.

The first lecture of the annual series of the Harvey Society will be delivered at the New York Academy of Medicine on October 16, by Professor Charles Wardell Stiles of the United States Hygienic Laboratory, Washington, D. C., on "Recent Studies on School Children with Special Reference to Hookworm Disease and Sanitation."

REPRINTS AND PAMPHLETS FOR THE SURGEON GENERAL'S LIBRARY.

In aid of completing the bibliographies of American physicians in the Library of the Surgeon General's Office, Washington, D. C., it is highly desirable that all reprints and pamphlets not saleable in the general

market should be deposited therein. Physicians who desire that their writings should be preserved in this collection will confer a benefit by sending copies of all separate pamphlets and reprints of their authorship, or bound collections of the same, to

The Librarian, Surgeon General's Office,
Army Medical Museum, Washington, D. C.

RESIGNATION.

Dr. Charles K. Mills has recently resigned, after a service of 22 years, as professor of neurology and psychiatry at the University of Pennsylvania.

APPOINTMENTS.

Dr. Edward C. Briggs of Harvard Medical School, upon his resignation as professor of materia medica, has been appointed by a vote of the Board of Overseers of Harvard, professor emeritus.

Dr. Hugh Barr Gray, of College Point, New York, has been appointed superintendent and resident physician of the Washingtonian Home, Boston, to succeed the late *Dr. V. A. Elsworth*.

Dr. James Craig Neel has been appointed instructor in obstetrics and gynecology at the University of California Medical School.

Dr. R. G. Pearce has been appointed assistant professor of physiology in the University of Illinois.

SOCIETY NOTICE.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The twenty-fifth annual session of the New York and New England Association Railway Surgeons, celebrating the quarter century anniversary of the organization of the association, will be held at Hotel Astor, New York City, October 21, 1915, under the presidency of *Dr. W. H. Marcy*, of Buffalo, N. Y.

A very interesting and attractive program has been arranged. Railway surgeons, attorneys and officials, and all members of the medical profession are cordially invited to attend.

GEORGE CHAFFEE, M.D.,
Corresponding Secretary,
338 47th Street, Brooklyn, N. Y.

RECENT DEATHS.

DR. F. FILMORE BURTIS, a surgeon of the steamship *Advance* of the Panama Railroad and Steamship Company, recently died on board the *Advance* and was buried at sea. He was born in 1877 at Troy, N. Y., where he received his education and graduated from the Medical College of Union University. He subsequently became city physician, coroner's physician, police physician and deputy coroner at Schenectady, N. Y. About five years ago he moved to New York and practised his profession in that city until his appointment to the *Advance*. Dr. Burtis was a member of the Schenectady Medical Association. He leaves a brother and two sisters. He was unmarried.

DR. CHARLES W. STILES, who died on Oct. 7, in Somerville, Mass., was born at Albany, Vt., in 1850. He received the degree of M.D. in 1888 from the Boston University School of Medicine. He had practised his profession in Newburyport, Allston, and Somerville. He was rhinologist at the Massachusetts Homeopathic Hospital, and a member of the National Institute of Homeopathy, the Massachusetts and Boston Homeopathic Medical Societies, and the Surgical and Gynecological Society.

The Boston Medical and Surgical Journal

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Address.

THE RELATION OF THE MEDICAL PROFESSION TO PREVENTIVE MEDICINE.*

BY HAVEN EMERSON, M.D., NEW YORK.

THREE parties are concerned in the prevention of disease,—health department officials, the citizens as a whole, and the medical profession.

The officials are concerned with the administration of laws based upon the application of accepted facts to actual living conditions. They are bound to carry out the provisions of the sanitary code of state or town and to enforce other laws, whether federal, state or local, which apply to the protection of health and life.

Citizens are obliged under the law to abate nuisances, when notified. They must give notice of the presence of communicable diseases. They must refrain from any act and avoid permitting any conditions harmful to health. The citizen's complaint is, in a way, a measure of public opinion for or against conditions supposed to have some relation to health. He is entitled to protection from the ignorance or neglect of his neighbor. He cannot be trusted as a sanitarian to inspect or estimate the importance of conditions he is annoyed or endangered by. He can be educated to demand improved sanitary standards, and his capacity for education and his respect for law are the measures of the possibility of progress in preventive medicine, everywhere.

except under military conditions, where the citizen has no choice but to obey.

As licensed to practise by the state or (it is to be hoped) in the future by the nation, practitioners of medicine bind themselves to observe and operate the laws. They are specified under various federal, state and local laws among other privileged professional groups as having certain duties and responsibilities in the matter of reporting births and deaths, notifying communicable diseases and occupational diseases or poisons, and in the use of drugs. They are the unofficial agents of the state and local health boards. Their contract with their consciences is expressed in their Hippocratic oath. Their contract with the state is expressed in the license to practise. Both informal and formal engagements bind the practising physician to heal the sick.

The citizen is helpless without his physician. The community accomplishes but little, and that little slowly, and wastefully of time and money, without its health officer. Health officer and physician are at disadvantage unless they recognize their respective fields and duties. The physician can no more do his full duty by his patient without the co-operation and assistance of the health officer than can the health officer serve the community unless the practitioner of medicine is his assistant.

The health officer is, or should be, a full time, suitably paid, qualified physician, a civil service appointee, and competing in no way with the practitioner of medicine. His function is to diminish the need of the practitioner as a therapist and to develop new and wider fields of

* Read at the meeting of the Harvard Medical Alumni Association, Boston, May 20, 1915.

usefulness for the practitioner as a diagnostician, and student of epidemiology, as analyst of personal and social and even economic disease, as educator of persons, groups and communities.

Treatment of disease should be no part of the functions of a Department of Health, except where existing facilities are lacking, and the burden is properly a community one, and the people concerned are too poor to pay.

In New York City we treat trachoma in the indigent, and remove tonsils and adenoids as other dispensaries and hospitals do, after the same kind of social investigation of each case as dispensaries are required to give. We reenact school children who are too poor to go to oculists. We maintain diagnostic clinics for tuberculosis, syphilis, gonorrhea, and occupational diseases. We maintain hospitals and a sanatorium for tuberculosis, and hospitals for measles, diphtheria and scarlet fever. We provide accommodations under police power for such tuberculosis and syphilis patients as are a public menace, and decline to submit to treatment voluntarily, or to obey sanitary regulations.

We used to administer diphtheria antitoxin on request by physicians, because of dosage and procedure were unfamiliar to most physicians when diphtheria antitoxin was introduced. We discontinued it two years ago at the request of physicians who said the department was taking the bread out of their mouths. The increase of diphtheria in the past two years makes us suspect that the practitioners of medicine are not using antitoxin as promptly as necessary, or for immunizing doses as freely as was formerly our practice, and as is necessary to control the disease. We administer tetanus antitoxin by the intraspinal method at physicians' request, as the method is not universally understood and the dosage is often unsuitable when called for from our laboratories by physicians. We vaccinate as necessity arises. I think this completes the record of our services for the treatment of disease.

We find a very general failure throughout the city on the part of the public dispensaries to treat syphilis and gonorrhea effectively or, I may say, in a way warranted by our present knowledge of diagnostic and therapeutic possibilities. It seems quite possible that the only way of obtaining a higher standard of diagnosis and cure for these preventable notifiable diseases, will be to enter the field of therapeutics.

We have shortened the period of quarantine to conform to the results of exact studies in whooping cough, measles and scarlet fever. A measles patient is released five days after the appearance of the rash unless the physician in attendance decides to extend the quarantine because of the existence of infectious discharges from nose or ears or persistence of cough. This practice is based on the evidence produced by Anderson and Goldberger, which showed that measles was not transmissible in monkeys for more than three days after the appearance of the rash.

A whooping cough case is not quarantined

more than two weeks after the appearance of the whoop. This is based on the evidence of our own bacteriologists, who have been unable to isolate the specific microorganism from the sputum at a later date than two weeks after appearance of the whoop.

A case of scarlet fever is freed from quarantine 30 days after the appearance of the rash regardless of the incompleteness of desquamation, except when there is a persistence of discharges from nose, throat or ears. This is based on clinical experience within the department, and the fact that scales do not appear to be capable of conveying the disease.

Diphtheria is quarantined only until two successive negative cultures are obtained from nose and throat. We no longer demand fumigation of the premises after measles, diphtheria, scarlet fever and tuberculosis. We demand personal cleanliness during the course of the disease and thorough cleaning of premises with soap and water, followed by ample ventilation. The failure of gas fumigation to penetrate and the inefficiency of fumigation as a safeguard have led to this decision.

According to the grade of intelligence of the family and the character of medical and nursing services provided for the sick, we either merely observe the case at outset and make no further visits, or the case is kept under careful supervision during the communicable stage to prevent failure of personal quarantine.

We have carried on a persistent campaign in all classes of the community for universal annual medical examinations by competent physicians. We have undertaken studies of occupational diseases and have urged upon employers the necessity of employing a physician as a part of their force to study their employees, to guide their industries as far as physical welfare and fitness to work, hygienic conditions of employees at home and at work are concerned, and as a teacher of human efficiency.

Many physicians whose work has been limited to so-called old-fashioned regular family practice, have noted a falling off in their incomes. This is but natural in view of the marked reduction in preventable diseases and in the diseases of the first two decades.

To offset this, we are creating a demand for the services of physicians as diagnosticians and practitioners of preventive medicine among the healthy or but slightly afflicted, and we are developing a need for physicians as agents of the state, their services to be administered for the benefit of the whole community.

The community is not getting the benefit of more than a small fraction of the knowledge and skill available in the profession of medicine. It never will until some system of administration, either by voluntary co-operation or by compulsory organization, is developed which will provide services in proportion and of the kind needed by the community.

Voluntary co-operation is shown in its best

form by associates in medicine, surgery, and the specialists who work as a unit from joint offices, or as the staff of a community hospital; such groups of clinicians resembling in efficiency the medical board of a well organized public hospital.

Compulsory organization has been attained in England and with a large measure of success. Something better should grow from it, and it would not be strange if we saw some State insist upon obtaining for its often helpless and uninformed citizens, its quack-ridden foreign factory operatives, etc., the services of a group of state physicians serving the communities in proportion to their needs in kind and amount of services, and paid for by taxation for public health service.

I do not believe a State medical service is the inevitable solution. The profession has a wonderful opportunity, which it must grasp promptly, and handle in a way worthy of its past record of public service if it would avoid the charge of considering its own interests before that of its patients. The community respects the profession, it looks to it for the solution of most of its ills, it is ready to support all reasonable measures and expenses asked by the profession, but there is a strong feeling that few physicians are as interested in prevention as they are in treatment. This impression must be dissipated.

Constipation cannot be treated without a personal knowledge of the patient's habits of life. A diagnosis of valvular heart disease is of no use to the patient unless you know how many flights he climbs to get to work each day. Positive sputum and a pulmonary lesion, even verified by x-ray and followed by suitable advice to the tuberculous, does not express the full function of the physician. Are others in the same shop or house developing tuberculosis? Are you treating a person or a community disease, assisted by alcoholism, developed in poverty, infected in a neglected environment?

The medical adviser's work is only just begun when diagnosis and treatment are offered. Diagnosis is only fragmentary if it is merely anatomical. Does the oculist find out why the child with a moderate myopia at six is a severe sufferer at eleven? Has he visited the school, noted the faulty adjustment of seat and desk, light and size of type, and by his protest saved others from a similar misfortune?

Has the aurist followed his chronic otitis case to the fur shop and seen the environment in which the daily dose of hair particles develops the chronic catarrh of the nose and throat, which will determine a certain number of deaf workers, so many cases of bronchitis and asthma?

No! They leave those things to the Health Department. The people learn the cause of their defects through the Health Department, and their family practitioner might have told them first and become the adviser to a trade group as well as to an individual.

The Health Department should be the servant of the medical profession and the public. The physician should coöperate as an associate instructor, as a volunteer field agent for the Health Department. The citizens show every inclination to support liberally both groups, and they are learning that preventive medicine is as good an investment as fire insurance.

The Health Departments are supported by a moderate tax upon all, for community improvement. Individuals will as readily tax themselves, and more liberally, for personal betterment if they can have some assurance that the character of services is the best obtainable and will be maintained. No individual physician without unusual resources can command for his patients the service of supporting experts and special data necessary to arrive at a thorough opinion as to his patient's condition. It is not the simple matter of distinguishing by a culture, a blood count, an x-ray or a skin reaction between two or three possibilities, with the certainty that careful clinical observation and treatment applied with good judgment will give the patient relief. The problem is one of detection of as yet unsuspected early indications of susceptibilities, approaching deviation from the normal limits of individual variation, tendencies to degeneration, chronic diseases of nutrition, progressive departure from safety in various functions. To give an opinion to a healthy man that he is well and free from threatening infirmities, to warn and advise the one who begins to show the damage of worry and severe strains, to check the over-zealous, to warn the lazy of the penalties of atrophy, to safeguard the special senses against abuse,—these take a much higher grade of diagnostic skill, a greater degree of co-operation among physicians, variously skilled in specialties, than does the practise of medicine upon the sick.

Coöperation is fundamental. The beginner cannot go it alone, he must combine with his contemporaries, or be associated with his seniors, or obtain permanent opportunities to get laboratory and technical assistance to complete his own physical examination. Chemistry and physics have got too far in applied medical diagnosis to permit any man to be his own complete laboratory assistant.

Can there be any question that the consultations of the future will be studies of doubtful cases of health? The learned discussions over the terminal manifestations of a fatal illness will give way to interpretations of facts as presented by a patient in full bloom of youth or in sturdy middle age.

To accomplish this will demand of the physician that he continue to study and improve. We shall find the post-graduate school a necessity. The state will be justified in adopting the policy of the army medical staff and demand a qualifying medical examination, every five or ten years, as a requirement for continuance in practice, and not alone for admission to practice.

Once the public realizes the present tremendous per cent. of error in diagnosis, even under the best hospital conditions, and autopsies will be demanded, it is to my mind a close question whether the medical profession will feel more humbled or the layman more alarmed when universal and recorded autopsies exhibit the limits of medical capacity.

The opportunity is calling. The medical schools are graduating competent men, post-graduate instruction is available. Coöperation is necessary for efficient service to the public. Preventive medicine, as applied to the families under our care, is a necessity. Will you wait until the State demands that you practise under her control, or will you take the obvious course and meet with organization for diagnostic efficiency, the call of a public increasingly well informed and eager to be advised? Whether we wish it or not we are involved in a stern and stirring conflict, and we cannot do better than to remember President Hadley's words:—

"For, after all, the lesson which observation teaches to the man of brains is the same that instinct has taught the gentleman for many ages past—that in any conflict which is worthy of the name, strength counts for less than intelligence, intelligence for less than discipline, discipline for less than self-sacrifice, or to put it in positive words, that unswerving devotion is the thing that counts for most of all."

Original Articles.

THE SYPHILIS WE SEE BUT DO NOT RECOGNIZE, AND THE IMPORTANCE OF FAMILIAL STUDIES.*

BY HENRY FARNUM STOLL, M.D., HARTFORD, CONN.,

Assistant Attending Physician to the Hartford Hospital, Hartford, Conn.

SHORTLY after the establishment of a special clinic for the treatment of syphilis at the Hartford Dispensary I remarked to a medical colleague that we were prepared to treat any of his patients who might need salvarsan but who were unable to pay the usual charge for treatment as private cases. He thanked me for the information, adding that he rarely saw any cases of syphilis in his practice but that if he should run across any, he would remember us.

I refer to this conversation because it is typical of the reply the average physician would make and is exactly what I would have said under the same circumstances a few years ago. A definite case of syphilis that could be diagnosed by a third-year medical student is one thing and the individual with some obscure symptom or physical sign who appears in the consulting

room of the general practitioner rather than in that of the syphilographer, is a very different affair. Especially so if the patient be a man or a woman of eminent respectability, and the cases here reported we might meet in business, at the club or in any drawing-room.

I have purposely included several cases that were not correctly diagnosed until many months after they first came under my observation, as it is only by recognizing our mistakes, that we can hope to lessen their frequency.

CASE 1. A man of forty consulted me some four and a half years ago because of a cough which he had had for nine years. He was also weak and each morning for the past six months had a severe headache on awakening. His coughing spells were severe and the paroxysms so marked that at one time he fell from his wagon. Another time he was sitting at a table and he coughed so severely that he fell from his chair. He was an inveterate cigaret smoker, drank to excess, overate and under exercised. He had had much sour stomach and five years ago his appendix was removed. Each night he arises two to four times to pass his water. Recently he has been taking some headache medicine several times a day. His family history was not particularly remarkable. His mother died of "asthma", age fifty-three, she was subjected also to hard coughing spells. His wife is living and is somewhat of a "neurasthenic". She has five children and has had several criminal abortions. Twenty years ago, prior to his marriage, he had some insignificant venereal sore which was not followed by any secondaries.

He was a very large man, weighing 220 pounds, with a bluish tinge to his hands and lips. He had the "wheeze" of chronic bronchitis and emphysema and there were sibilent râles over both lungs.

The urine exhibited a trace of albumin from time to time and occasionally a few casts were seen. No tubercle bacilli were found in his sputum. The systolic blood pressure was 100. This was a surprise because the history of morning headaches and nocturia at once suggested hypertensive disease. Quite recently Volkhard drew attention to the fact that syphilis not infrequently causes this picture, for which he has suggested the term "nephrosis." The diagnosis in this case was chronic bronchitis, emphysema, nicotine and coal tar poisoning. It also seemed probable that there was some cardiac and renal pathology. It was impossible to obtain the co-operation of the patient in regard to his vicious habits.

A small dose of sodium bromide and potassium iodide made him feel better. About eighteen months later he again came in complaining of very severe headaches during the night, especially in the early morning, and of some pain across the chest. He was smoking about three packages of cigarettes a day and taking headache wafers. His lips were still blue. The systolic blood pressure was 135 and the urine contained a trace of albumin. At this time he drew my attention to a horny condition on the back of his hands near the knuckles. As this looked like a late skin syphilis, Wassermann and luetin tests were made and both were very positive. His headaches were of such severity that a lumbar puncture was done but except that the pressure was over 250 m.m. the fluid was negative. He received several injections of neosalvarsan and mercury andulti-

* Read before the Tolland County Medical Society at Stafford Springs, Conn., October 19, 1915.

mately his headaches disappeared though they did not respond promptly. Had I thoroughly investigated the health of this man's family when I first saw him I might have made the correct diagnosis at that time rather than eighteen months later. His wife has been more or less constantly under medical care for nervousness and "dreadful headaches". The eldest son stutters very badly and eight years ago had "sore eyes" and at this time had an acute interstitial keratitis. A daughter of fourteen is very robust but has one short arm. Another daughter, age ten, is subjected to headaches. A third daughter of seven years also has a short arm. With one exception, all had either a positive Wassermann or luetic test.

This family illustrates the tragedy that may follow in the wake of an ante-marital infection and shows hereditary syphilis as an active disease and as a creator of dystrophies.

While it has long been known that headaches of acquired syphilis are rather more apt to be severe in the early morning, it is not generally appreciated, however, that hereditary syphilis may cause exactly the same sort of headache. Excluding headaches due to acquired syphilis, the eyes, kidneys and intestinal stasis, I believe the majority are due to a prenatal luetic infection. Many cases of migraine belong to this group. Many, perhaps most, of these individuals do not show any of the common stigmata of hereditary syphilis.

CASE 2. A young woman of twenty-four, married five months, complained bitterly of headaches. As a child she was very well but about six years ago she began to suffer from severe headaches. They would sometimes come on during the night and would be so severe that they would awaken her; they usually were somewhat better by noon. She has one sister who suffered so severely from headaches that she had to leave school. Many physicians were consulted but neither of the young women obtained relief. Her mother is living and appears to be in good health. There are two brothers and two sisters and the mother has had two miscarriages. Her husband has had no venereal disease.

The fact that the father had died at fifty from "shock", was the first thing to suggest the possibility of syphilis, as sudden death at that age is usually due to that cause.

This young woman was an exceedingly fine looking, healthy individual. She had excellent teeth and the only thing noted was the fact that her eyes were slightly prominent which, however, she informed me was normal for her. The Wassermann was very strongly positive. She was put on active treatment, potassium iodide and daily injections of mercury for the first two weeks, then salvarsan.

She received several injections of salvarsan, with ultimately marked relief but for the first week or ten days however, after the treatment was begun her headaches were definitely worse. This is a very significant fact as I have repeatedly observed headaches, joint pains, anginal pains, etc., made distinctly worse when specific treatment was first instituted. In fact, aggravation of the symptoms occurs so frequently that it is in a manner diagnostic and it is because prompt relief has not followed in many instances that specific treatment is often discon-

tinued before it has really been thoroughly tried out. Since putting this patient on specific treatment, the slight exophthalmos has become notably less.

A group of cases whose etiology is obscure and whose treatment is unsatisfactory comprises the patients who complain of an indefinite pain in the precordial region. This pain frequently seems to be caused by gas in the stomach and is sometimes relieved temporarily by belching. Like the pain of the so-called "real" angina this lesser pain may be referred to the left shoulder. Sometimes one may detect an obvious lesion of the heart or aorta; more often they show absolutely nothing on physical examination. They are usually more or less neurotic individuals who are concerned, not because of the severity of the pain, but because it is situated in the region of the heart. When asked if they would consult a doctor if they had a pain of equal severity, for instance in their shin, they invariably say, "No."

Nothnagel who studied four hundred and eighty-three cardiac cases found that 60% of the cases of aorta insufficiency and 68% with aortic insufficiency and stenosis complained of this symptom, while 7% of the cases of mitral insufficiency had precordial pain in 17% of mitral insufficiency with stenosis.

Considerable evidence has been accumulated both in this country and in Europe to show that a very large number (80 to 90 per cent.) of cases of aortitis are due to syphilis.

I have records of about fifty patients who complained of more or less constant pain in the region of the heart; for the most part unaccompanied by physical signs.

They will be discussed at another time. It is sufficient to state that in many there is reason to believe that the symptoms were due to a prenatal syphilitic lesion of the aorta or coronary arteries, which belief was strengthened by the marked improvement or complete recovery that usually followed specific treatment. The following case is typical of this group:

CASE 3. A married man of thirty-two consulted me over two years ago because he "choked up" and belched gas. He had always enjoyed the best of health and was an unusually robust appearing individual. His father and mother were living, the latter was stated to suffer slightly from "indigestion."

Some six months before, after eating peanuts, he felt faint and since then every few days he has had an uncomfortable feeling of pressure in the region of his heart. He also has experienced some slight pain in his left shoulder. He has observed that the pain is worse when he lies on his left side but at no time does he suffer intensely, though he appears very nervous because his distress is in the region of the heart.

He smoked excessively, exercised but little, used alcohol moderately and ate heartily of meat twice a day. Eight years ago he had gonorrhea which promptly responded to treatment. Pulse rate was 80, systolic pressure 125, diastolic 110. There was

no enlargement of the heart but along the left border of the sternum the first sound was not entirely clear though it could scarcely be designated as a murmur. His urine, except for excessive amount of indican, was negative. A low protein diet, exercise, buttermilk with a small dose of bromide after meals was prescribed. Tobacco was also interdicted.

Following this treatment he seemed to be better for the first week. Soon, however, he complained of "little sharp pains" in the precordial region occasionally going to the left arm. Never in the right arm. Sometimes this pain lasted an hour or so and other times it was of much shorter duration. He has several of these attacks every day. Except for this, he assured me he "felt like a two-year-old."

Because the pains increased and as he gave a strong luetin test he was put on injections of sodium eacodylate hypodermically, alternating with mercury salicylate.

After several weeks of treatment the pains completely disappeared but about five months later they recurred slightly. At this time the Wassermann was negative, the luetin was strongly positive.

He was given several injections of mercury and three of neo-salvarsan. Ten days after the last injection he said he could lie on his left side without discomfort and he had had no pain whatsoever through his left chest since the last treatment.

His Wassermann six weeks after treatment was discontinued was again negative, the luetin was slightly positive. He has had no treatment for over a year and within a few weeks he told me he was feeling first rate and had not had any recurrence of the pain. It was assumed because of his apparent good family history and from the fact that he had gonorrhea eight years previously, that he had acquired syphilis then. As it will appear from the study of his mother's case, which follows, it is probable, however, that his trouble was due to hereditary syphilis.

CASE 4. About a year and one half from this time his mother, a woman of fifty-five, consulted me because she was exceedingly nervous and could not sleep at night. She also complained of shortness of breath on exertion and a "beating" in her neck.

Her family history was not remarkable. She had had seven children, five of whom died in infancy and childhood. The son is the case just previously described. Her daughter is subject to severe headaches for which she has unsuccessfully sought relief.

The mother was a large woman whose systolic pressure was 193 and diastolic 143. Except for an occasional extra systole the heart was negative as was the rest of the examination.

The Wassermann reaction was negative, the luetin test was strongly positive. The urine contained neither albumin nor sugar. She was put on potassium iodide and mercury by mouth which was continued for several months. I think she also took injections of mercury though I do not find it so recorded. One month later she was sleeping very much better and had ceased to be nervous. Her systolic blood pressure at this time and two weeks later was 150. Nine months later I was told by her son that she was still sleeping well and was not nervous and that her general health was better.

Insomnia, especially in the early morning

hours should not be regarded lightly as it is frequently a forerunner of a serious syphilitic process of the nervous system.

A large and important group comprises individuals with hypertensive cardiovascular disease as syphilis seems to be the underlying factor in a much higher percentage of these cases than we have hitherto supposed.

As the result of a recent study² of a series in which other members of the family were investigated as well as the individual with hypertension, the statement was made that hereditary syphilis plays a very important rôle in hypertensive disease of middle life.

It was furthermore suggested that the families prone to early cardiovascular degenerations are really manifestations of familial cardiovascular syphilis.

CASE 5. A woman of about sixty was referred to me several years ago. For years she had been exceedingly nervous, short of breath, and complained much of precordial distress. Her blood pressure for at least ten years had varied between 180 and 200. Her father had been much addicted to alcohol and died at an early age, of an unknown cause. Her mother had also died early in life but the nature of her illness was unknown. The patient's husband is a man of exemplary habits and has never had any venereal disease. The heart was somewhat enlarged to the left but the sounds were clear at all times and the action was perfectly regular.

This patient complained mostly of a pain under the left breast which was somewhat relieved by compressing that side of the thorax firmly with her hand. For several years her condition did not change and every few months the services of a trained nurse would be required because of nervous attacks.

The Wassermann was negative, which may have been due to the fact that she had been on small doses of potassium iodide for about ten days. However, the Wassermann reaction is very often negative in adults with hypertensive cardiovascular disease due to syphilis when the luetin test is positive. The value of the luetin test is considerably enhanced if the patient be put on mixed treatment for a week before it is used and for about two weeks thereafter. The reaction may be delayed two or three weeks. This test was exceedingly positive, in this case, the pustule resulting being very large. She has received injections of mercury with potassium iodide by mouth for over a year with a marked improvement. She has not required the services of a nurse during the past winter and has gone out more socially than in many years. She has still some distress through the left breast but it is much less frequent and not so severe. She is also inclined to be nervous but this symptom is also markedly diminished.

The dyspnea on exertion has not materially changed. The phthalein kidney function before treatment was 22% the first hour and 7% the second hour, total of 29%.

Eighteen months later it was 47% the first hour and 23% for the second hour, total of 70%.

Recently when she was particularly free from

nervousness her systolic pressure was 150, diastolic 80.

Early in September she stated that it had not been necessary for her to go to bed this year because of hay fever, for which she was particularly pleased, as for many years she has spent from two to four weeks in bed because of that trouble and the weakness resulting therefrom.

I do not think one is warranted in assuming that her treatment was responsible for this, except in so far as the improvement of her general condition is concerned.

Sherrick³ has recently made the statement that 99% of all non-syphilitic individuals will react positively to the luetin test if they have received potassium iodide previously or after the test has been given.

His article, however, is not convincing, as the cases he considered as "non-syphilitic from every standpoint" included patients suffering from brain tumor, hysteria, sciatica, traumatic neurosis, chronic nephritis, epilepsy, exophthalmic goitre and arterial sclerosis, any one of which might be due to hereditary syphilis; a negative Wassermann being of no value in excluding hereditary syphilis in adults. It furthermore would seem that the reaction he obtained following the injection of agar and emulsion of starch, might have been an evidence of "*unstimmung*," or skin irritability which syphilitics often possess to a variety of substances.

I have frequently observed the *unstimmung* at the site of the "control" which Noguchi at first used on the opposite arm, to be particularly marked in cases that had received treatment. Frequently it was as strong as the luetin test itself.

In hypertensive cases with a systolic blood pressure of moderate degree very definite improvement will sometimes follow mercury injections and potassium iodide if continued over a period of several months. When the systolic pressure reaches two hundred or above it is questionable whether improvement will follow.

I have given salvarsan to several of these cases but except for the relief from anginal pains I have been more impressed with the improvement that follows mercury and potassium iodide.

To cope with the problem of syphilis it is essential to look upon it as a familial disease. We are only doing a small part of our duty when we treat the patient with interstitial keratitis. His father and mother, now in middle life, are quite likely beginning to show some of the late manifestations of syphilis and his sister, perhaps about to marry, may have a positive Wassermann.

All members of the family should be examined when a case of syphilis is discovered.

Practically, this is often impossible, as the average citizen who feels well does not want to be tested and refuses "to doctor," even if the tests prove him specific. This fact, however, in no way excuses the physician from doing his duty.

The next three cases illustrate this importance.

CASE 6. A widow in middle life, who had enjoyed good health prior to her marriage, consulted me because of several hemoptyses. The physical examination showed many râles at both apices and over the right lower chest in front. Tuberculosis was diagnosed and she was sent to a sanatorium. There were several points in her history, however, that required further investigation. In the first place she had had headaches and been dizzy for a number of years and her hearing was impaired in the left ear. She had also had darting pains in the ends of her fingers "like needles," and in common with all the members of the family she had suffered from "rheumatism" which, upon inquiry, was shown to be vague pains in different parts of the body. Her husband had died suddenly at the age of fifty-eight. He had been a widower for a few years prior to his marriage to my patient. Through the courtesy of his eldest son by his first wife I ascertained that all of the children of his first marriage were in excellent health save my informant who had traumatic epilepsy. At my request he had a Wassermann made which was negative. My patient had a very strong Wassermann and luetin test. Through the courtesy of Dr. McPartland I was enabled to test her own son and daughter. The latter, about thirty, was undersized, stunted in appearance, of unhealthy color, and very excitable. For years she had suffered from headaches of extreme severity which were often accompanied by vomiting and at times required morphia. The son was illegitimate, being born after her husband's death. He had suffered from some congenital eye disease in early age and at one time a large amount of skin "peeled off" his body. He is quite immature mentally. Though twenty years of age he is quite happy to be about in an "Indian costume" and play and sleep in a tent. He attends to his work, however, every day, though his mother is concerned that he is so interested in childish amusements.

Both son and daughter exhibit strongly positive Wassermann and luetin tests. The latter experienced much relief from her headaches after specific treatment but they recurred later on when treatment was stopped.

The mother's headaches were at times so severe that an examination was made of her spinal fluid but it was entirely negative. She was greatly improved by neosalvarsan and mercury. Her hair and eye brows were quite grey when the treatment was instituted; subsequently many new hairs appeared all of which were black, which was the original color of her hair.

It seems probable that her husband contracted syphilis sometime between the death of his first wife and his second marriage.

The family history in this case was particularly interesting because all of the members had suffered for years from what they considered "rheumatism," that is vague pains in different parts of the body, sometimes in the "muscles" again in the "bones," then in the joints. These pains are more apt to be worse in bad weather. The "rheumatism" of this family was completely dispelled by specific treatment. We are only just beginning to learn that hereditary

syphilis of the bones, periosteum, synovial membranes is a common condition. Very often it is considered tuberculous.

CASE 7. A young man of twenty-five referred to me by Dr. Swett first noticed a stiffness in the calf of his leg some five or six years ago, when playing baseball. This was not constant and caused him no pain. He has, however, limped for about two years and when sitting quietly he has a "nervous feeling" in his leg. Shortly after the onset he noticed that his

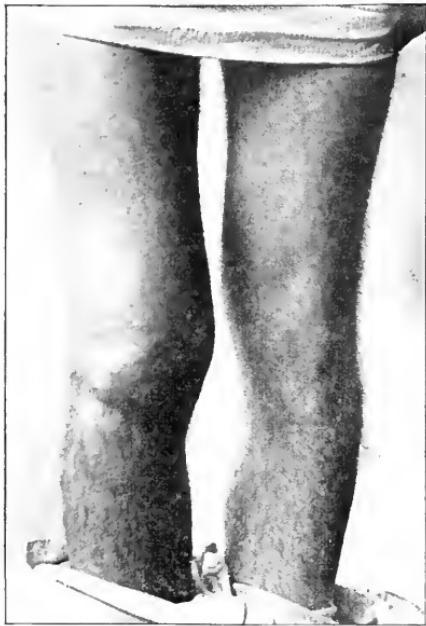


FIG. 1.

Case 7. Hereditary syphilis of knee simulating tuberculosis.

knee was swollen. (Fig. 1). He had taken "rheumatism medicine" and for the past year had been having it massaged. The x-ray picture was not conclusive though suggestive of an early tuberculous focus in the inner condyle of the femur, which seemed probable, as the Wassermann reaction was negative. He entered the hospital for further study and possibly for the resection of the joint. He was given the tuberculin test and a general reaction resulted but no focal reaction occurred in the knee. He was then given the leucin test which was positive.

Upon examination the only stigma suggesting congenital syphilis was a very high narrow palatal arch. I found, however, that his mother had a systolic blood pressure of over 200. It was furthermore learned that his father had had a venereal disease prior to his marriage and had been sexually immoral. His mother had two miscarriages and her oldest daughter became deaf when about thirteen and has "awful headaches with noises in her ears." Glasses relieved her somewhat. This sister, whose palatal arch is also narrow and high, has a very positive Wassermann reaction. The mother's Wassermann is negative but the leucin was positive.

Perhaps, the most instructive thing about this case was the fact that his Wassermann, cholesterol antigen, was negative. Everyone who writes about the Wassermann states that a negative test does not exclude syphilis, but nevertheless, the majority of physicians discard the diagnosis of syphilis when one or two negative reports are obtained. Yet the failure to find tubercle bacilli in the sputum by no means excludes the possibility of tuberculosis when the symptoms and signs point to that disease.

It is undeniably true that innocent persons free from lues have had the stigma of syphilis attached to them, due to laboratory mistakes, but the number of persons equally guiltless, though suffering from syphilis, who have been denied active specific treatment because of a negative Wassermann, I believe, is greater.

This case further demonstrates the value of the subcutaneous tuberculin test in bone and joint lesions. Though he had a general reaction showing that he had a tuberculous focus, there was no reaction in the lesion in question. His response to salvarsan and mercury has been very gratifying.

CASE 8. An unmarried girl of twenty-one referred to me by her physician. Following an injury about a year previously she noticed a swelling in the back of her left leg. As there was much that suggested an inflammatory process an operation had been performed and a mass removed, which proved to be a gumma. A Wassermann reaction was subsequently very positive.

A careful study of this young woman and her family, however, would have suggested the possibility of congenital syphilis and this operation would have been avoided.

In the first place, although she was twenty-one years of age, she did not appear, either physically or mentally, to be over sixteen.

Her palatal arch was high and narrow and she stammered badly. I do not know what the relationship between congenital syphilis and stammering is but several patients who were badly affected with this distressing condition all had some manifestation of hereditary syphilis. It seems that it might be classed with the dystrophies due to this condition. It was, furthermore, necessary only to see the mother to have syphilis suggested, because of the ptosis of her left eye lid. When questioned as to the health of the other members of the family the information was obtained that the next youngest daughter had been told that she had a serious "blood disease" some years before when she consulted a throat specialist because of a perforation of her palate. The mother and younger sister who is "all right" now had strongly positive Wassermann's.

Again we see the great importance of looking upon syphilis as a familial disease. Had this been done when the sister consulted the throat specialist and had he insisted upon the other members of the family being examined, it is quite probable that adequate treatment would have prevented the development of the gumma in the leg of this patient as well as the periostitis which

the mother developed later on. This case is also of interest because of the apparent effect of trauma in the development of the syphilitic focus.

The detection of the stigmata of hereditary lues in the children may explain an indefinite illness in a parent as the next case illustrates:

CASE 9. A woman of sixty-two complained of stomach and intestinal trouble of four years' duration. Questioning, however, brought out the fact that there were no symptoms definitely referable to the stomach but she had suffered from diarrhea for several years, and each day she would have four or five liquid stools. The odor was described by the patient as being rancid. Much of the time she had what she described as a "slow pain" in the upper part of the abdomen. She has also suffered from "bilious attacks" for several years.

Several years ago she was very ill and the diagnosis of pyelitis was made, and for many months she took nurotropine off and on with benefit. She suffered considerably from headaches in the morning and has lost a great deal of strength lately. For this reason she has been forced to lead a very much less active life than formerly.

There was nothing particularly note-worthy in her family history. She looked to be much older than she was and the only thing discovered on physical examination was that the liver was considerably enlarged and moderately tender over the left lobe. The rectal examination was negative.

With a person of her age one's first thought would be a malignant condition involving the liver and probably the large intestine as well. The "bilious attacks," however, were very suggestive of gall stones.

Her two daughters accompanied her to the office, and it was about this time that the older daughter smiled. It could be truthfully said that she had an "illuminating smile" (Fig. 2) as the anterior sur-

face of all the incisors were studded with a number of small hypoplastic areas, many of which had been filled with gold. This daughter, who was thirty-one years of age, also had a very heavily furrowed tongue, and when eight years of age, she had also had an acute glossitis and the tongue was nearly perforated. As a child she had suffered much from growing pains in her legs and has always suffered from severe headaches. She says she is "always tired." The other daughter had a high, narrow palate. Upon questioning the mother, I ascertained that her husband had died from "general debility" at the age of fifty, and that he had been very immoral sexually.

Three of her pregnancies were stillbirths. The mother and older daughter had a negative Wassermann, but in both the luetic test was positive. The mother's strength and endurance were greatly increased by inunctions and potassium iodide, but as she continues to have an occasional bilious attack, especially at night, an operation has been advised on the assumption that she may also have gall stones. Syphilis of the liver, however, may simulate gall stones very closely.

I cannot take up the question of the teeth in the diagnosis of hereditary syphilis but I feel strongly that syphilis leaves its mark on the teeth much more frequently than we are apt to think, and that most of the dental hypoplasias are the result of hereditary syphilis.

The next three cases illustrate different types of "rheumatism".

CASE 10. A young unmarried woman of twenty-three had suffered from "rheumatism" for several months before I saw her in March of this year. She was an exceedingly healthy child, free from headaches and growing pains. About seven months previously she first noticed pains across the base of the toes of the left foot. This pain continued both day and night.

Under the belief that it was due to a fallen transverse arch, a support was made which, however, seemed to increase the pain. Thinking that it might be an infectious arthritis, her tonsils, which were unhealthy, were removed in the fall of 1914.

No improvement followed, however, and the pain shortly thereafter extended to the right knee, then to the left foot. The pain was severe, constant and did not respond to any treatment, although various schools of therapy were tried. Later on, the left knee became involved; finally the heel of the right foot, and for five weeks the patient was confined to bed because of the pain caused by walking.

There has been no improvement since the patient took to bed. She was a large well-nourished young woman, slightly pale, with excellent teeth and gums, and a normal palatal arch. Her pupils reacted to light but were not absolutely regular. The knees were swollen and pressure over the patellae, the inner and outer condyles of the femora and upper part of the tibiae was painful. The right foot at the base of the great toe was swollen and tender and also the lower part of the os calcis. Passive motion of the knees, however, was not painful.

This was the most significant thing in the whole examination. The tenderness was greatest over the epiphyseal line. In other words she did not have an arthritis of her knees, but rather an epiphysitis of tibiae and femora. Her Wassermann was strongly positive. Her father had a syphilitic infection four years after his marriage, and has had several strokes



FIG. 2.

Case 9. Small hyperplastic areas in many of the teeth, commonly attributed to diseases of childhood, but in reality usually due to hereditary syphilis.

face of all the incisors were studded with a number of small hypoplastic areas, many of which had been

of apoplexy and exhibits a positive luetin test though a negative Wassermann.

The next case I recall with embarrassment.

CASE 11. A man of forty-two was referred to me by Dr. Wm. Bartlett for an opinion as to the condition of his lungs. He spoke no English and through an interpreter, whose English was very limited, it was learned that he had been in good health until five years ago but that since then he had been weak and had a slight cough and at one time the sputum had been very slightly blood-streaked. Nocturia three times. A brother had died of tuberculosis a few years before, but the patient had not been with him. He had fine râles, on coughing, over the lower anterior aspect of both lungs and a few at the right apex behind. The heart did appear to be enlarged but the sounds were very faint, being barely audible at the base.

There was no albumin in the urine. The diagnosis made was "tuberculosis not likely; myocarditis with secondary changes in lung"; digitalis was advised.

A year later I discovered the patient in the Hartford Hospital and at that time he presented definite signs of aortic and mitral insufficiency. My embarrassment may be imagined when the house physician pulled down the bed clothes and drew my attention to a number of large scars along both tibiae! I had not looked at his shins.

CASE 12. A colored man of fifty-five consulted me in September, 1914, because of stomach trouble which had persisted for about two years. He had never experienced severe pains but was flatulent and somewhat "sore". This had increased in the last few months. He sleeps well and has a good appetite but has lost considerably in weight. His family history was good. The radial arteries were slightly thickened. Heart and lungs were negative. Except for a movable right kidney the abdominal examination revealed nothing. We have here then a man complaining of digestive disturbances, accompanied by considerable loss of weight and, as he is fifty-five years of age, malignant growth is the first thing one thinks of. Further questioning, however, elicits the fact that sometime ago he had some rather severe pains in his legs, and that the sensation over the upper part of the left foot was poor; "it felt numb." He furthermore has had slight incontinency of urine for several months. He also complains of some pains in the lower part of his back which were "crawling in nature." On examining him further it was noted that both pupils were irregular and almost immobile.

He moreover had no knee jerks. His blood, Wassermann, was strongly positive, but negative in the spinal fluid until after he had had considerable treatment, when it became strongly positive.

This early tabetic, masquerading as a simple case of indigestion, has been very much improved since intramuscular, intravenous and intraspinal treatment has been instituted. Not only have his digestive disturbances disappeared, but his general health is also markedly better. He still has the numbness in his foot, but very rarely any pains in his legs.

CASE 13. A woman of thirty-two was referred to me by Dr. Travis of New Britain, for an examination of her lungs, as she had a slight cough and was weak. I did not find any evidence of pulmonary or

cardiac disease. She had always been a "weakling" she stated. As a child she fainted easily and was never strong. She had much headache, which was relieved by glasses. She is sure she has indigestion as she has a feeling of pressure below the sternum. This does not bear any relationship to meals, however, and is apt to be more marked on awakening in the morning and is accompanied by a disagreeable sensation, hardly a pain, which extends upward on the left in the precordial region and sometimes through to the left shoulder.

For some time she has occasionally felt a numbness in the fingers of her left hand, chiefly the little finger. Being out in the cold often brings it on. At such times her finger at first becomes very white, then marked congestion follows, at which time it "throbs". She has frequently noticed it on retiring after eating too heartily. She has slept very poorly for a long time, especially in the early morning hours. She is a frail woman, weighing 104 pounds, with normal pupils but no knee jerks. She stated that her physician had told her several years before that the reflexes were not normal. There was no Achilles reflex and no Babinski.

She had moderate enterophtosis. Her father died at sixty-three of "heart trouble". He had not been a strong man and had suffered from lead poisoning. Her mother informed me that he had contracted syphilis at the time of the Civil War and that he had infected her prior to the birth of their first child. The mother's first three pregnancies were premature, living only a few days, and all were "bleeders". The fourth died at the end of the first week. The fifth was a still birth at the seventh month. The sixth is now living with a spondylitis and the next is the woman herein described. She gave a very positive hemorrhagic luetin reaction but the Wassermann on blood serum and spinal fluid was negative. There was no globulin in the latter and there were six cells per cm.

Though Fournier years ago drew attention to this weakling group, it has received but little attention since. They are always "ailing" yet with nothing definite the matter. They are prone to all types of infection especially to tuberculosis, and they often die. Fournier tells us, of "nothing at all so to speak." The women of this group are quite apt to be sterile.

The case cited is also of interest because she presented the picture of Reynard's Disease. I have seen one other case in an adult woman who had a prenatal syphilitic infection. Bosamyⁱ has reported two cases due to hereditary syphilis, both of whom were cured by specific treatment. I have treated a number of this "weakling" group with very small doses of salvarsan and mercury both in the form of inunctions and injections but the results for the most part have been very discouraging. But is it not quite likely that some of these unfortunate individuals might now be enjoying their rightful heritage of good health if they had received thorough treatment in their early childhood?

CONCLUSION.

The late symptoms of lues are often vague but their indefiniteness should put us on our

guard. "Chronic rheumatism" and "chronic headache" mean "chronic syphilis" in many cases. The physician who does not avail himself of all the newer tests before making these diagnoses assumes a grave responsibility. By carefully studying other members of the family some evidence of syphilis may be detected when nothing can be discovered in the patient himself. Of supreme importance is the realization that syphilis is a familial disease. It is a problem for the family doctor, not for the genito-urinary specialist or the dermatologist. Finally, we must not lose all sense of perspective and become blind worshippers at the shrine of Wassermann. Admitting that it is the most valuable laboratory test yet discovered, it is not infallible. Positive in nearly all early cases of syphilis it is often negative in the late cases, especially in adults with a prenatal infection. Even when positive it does not prove absolutely that the lesion in question is due to syphilis. The Wassermann and luetin tests should supplement, not supplant, the complete history and careful examination.

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SOME OF THE ANATOMIC-PATHOLOGIC PROBLEMS IN TUBERCULOSIS.*

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Bovine and Human Infection versus Bovine and Human Clinical Tuberculosis. In this short paper I desire to call attention to several very important problems in the realm of anatomy and pathology, which are as yet unsolved, although they have apparently been discussed from nearly every conceivable standpoint.

The question of bovine and human infection has received more consideration during the last few years than almost any other subject connected with tuberculosis, and yet the relationship is far from settled. The scientific world now recognizes it as a fact that bovine tuberculosis infects human beings; but believes equally that the human bacillus is the most common source of infection in human tuberculosis. While the non-pulmonary forms of the disease, those which are particularly prone to infect children, are often considered to be produced by the bovine bacillus, pulmonary tuberculosis,

which most commonly affects adults, is considered to be nearly always due to the human bacillus. This has been accepted as meaning that tuberculosis in childhood is conveyed to the human race through milk and meat, while tuberculosis in the adult is probably conveyed from one infected individual to another; but such reasoning will not hold, for we know that the human being, both in childhood and adult life, is exposed to human and bovine bacilli, and that both gain entrance to the body.

As far as we know, no matter how bacilli are taken into the system, and no matter what kind of bacilli, if in sufficient numbers, they produce an infection. They may be primarily implanted in other tissues of the body, such as seems to be the case from Ghon's reports; but this is only temporary and, sooner or later, they find their way into the lymph glands and produce lymphatic tuberculosis.

So far as we know both bovine and human bacilli take the same course. Pathologists who have recovered the bacilli and studied them carefully show that in early life infection is often of the bovine type, while in later life it is almost always of the human type. In this connection I would like to mention that infection in childhood may take place in any part of the body where bacilli are detained in their course; and is as likely, or more likely, to be extrapulmonary than pulmonary. The reason for this I shall discuss farther on in this paper. It is necessary to cite at this point the very important fact which seems to be well established by pathologists today, namely that the primary infection in the child gives a certain amount of immunity to the disease and makes further infection much more difficult after a primary infection has once been set up in the body; and the further belief that the later infection of the lung or other portion of the body, which manifests itself in adults is, in a very large per cent. of cases, a metastasis from the primary infection which took place during childhood. If, then, both human and bovine bacilli are taken into the body during early life; and, if they both produce a specific immunity against themselves; and, if they both become implanted in the tissues and then follow the same course, either going on to active disease, healing or remaining quiescent for a time, to become active later and spread to other parts of the body; and, if the bacillus recovered from the focus in the child is often of the bovine type, while the bacillus recovered from the infection in the adult is almost never of the bovine type; does it not seem that one of two things occurs: either that bovine bacilli find the soil so unsuitable to their growth that unless they produce active disease at once they die out; or, that the bovine bacilli, remaining in the human tissues during a period of years, finally adapt themselves to the human tissues, and in the process change their morphological and reactive peculiarities and assume the human type? Such

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transmutation is far from unlikely. We must look upon the human and bovine bacilli as being different types of the same organism, and varying only because of their different habitat; the one adapting itself to the bovine tissues, and the other to the human tissues. Why could it not be that by subjecting one to the tissues of the other's host over a prolonged period of time that it would take upon itself the characteristics of the bacillus which naturally inhabits that soil?

Primary Focus and Primary Metastasis. There has been a great deal of discussion on the question of the primary focus in tuberculosis; and also on the primary metastasis from this focus. In tuberculosis of the lungs pathologists have been divided in their opinion as to whether or not the tuberculosis of the peribronchial glands is secondary to the pulmonary involvement or whether the pulmonary involvement is secondary to a primary infection of the glands. This discussion goes on without any particular advantage to the adherents of either theory. Most observers, however, believe that the glandular involvement is first, and that the pulmonary involvement, that is, the chronic apical involvement which particularly characterizes tuberculosis of the adult, is a metastasis from this.

Ghon has recently, however, revived interest in this important discussion and brought forth proof, which seems almost incontrovertible, that the primary focus in tuberculosis is often found in the lung, the infection in the peribronchial glands being secondary to this. To this discussion I would like to add the following observation, which seems to make it possible to harmonize these differences. There is a marked difference in the behavior of the infection which takes place in an animal or human being who is healthy at the time of inoculation and one who is already infected. An infection, when once present, produces a hypersensitivity of the cells, and in this way creates a defense against further infection by the same micro-organism.

The mucous membranes and other tissue of the non-infected organism show no specific defense, consequently offer little opposition to the passage of bacilli. This we see in the readiness with which bacilli pass through the tonsils of the little child and affect the cervical glands; or the bronchi and affect the peribronchial glands; or the intestine and affect the mesenteric glands, without being stopped in the intervening tissue. The first important barrier met, prior to the time infection occurs, is the lymphatic glands, the particular structures which are peculiarly active in the defense of the organism at this period of life. After an infection has occurred, however, and the cells of the body have become sensitized to the bacillus and its products, cellular defense becomes general. Then there is a specific opposition offered to bacilli at every point of entry, the degrees varying probably with many circumstances. This was beautifully demonstrated years ago by Koch's experiments, showing that the healthy guinea-pig, when inoculated, shows a

slight temporary inflammation at the point of inoculation, which disappears after a short time, but that a very marked involvement of the neighboring lymph glands takes place; while the inoculation of a guinea-pig which is already tuberculous behaves in a very different manner. This difference depends upon the hypersensitive condition of the body cells. The protective influence of the previous infection shows itself in an attempt on the part of the body cells to limit the infection to the point of inoculation; consequently a nodule appears, followed by inflammation, and after a few days, ulceration. The infection, being localized, is thrown off, the neighboring lymph glands remaining free from involvement. Such, my study leads me to believe, is the case in the natural infection in the human body. If tubercle bacilli pass through the mucous membrane of the tonsils or any portion of the upper air passages or lungs or lower air passages, or intestinal tract, they are apt to pass at once to the lymph glands; but in instances where they fail of this and become implanted locally in the tissues, they form small nodules such as those described by Ghon in his remarkable work. But these foci are extremely small, many of them not being larger than peas, or small beans, or marbles. The peribronchial glands draining these areas, on the other hand, are quite large and bear the brunt of the infection. Through this infection the hypersensitivity of the body cells is produced, and then when bacilli are carried from these glands to other parts of the body, whether it be the lung, joint or bone, there is at once a tendency to limit the infection. These metastases usually occur through the blood, and are produced, as a rule, by few bacilli. Escaping into the blood, the bacilli are diluted and for the most part destroyed. Those which are strained out in the small capillaries to produce a local infection, are probably reduced in virulence; and when they come in contact with the action of the sensitized cells their virulence is further limited so that the lesion which results is either abortive in character or a non-virulent one. This primary metastasis, as a rule, is quiescent for some time before it produces active symptoms; but from it, eventually, other metastases occur. Even though it may be larger than the primary focus in the lung, described by Ghon, it is not followed by marked enlargement of the regional lymph glands. We notice the same freedom from infection of the lymph glands in secondary metastases in the larynx and intestinal tract. Applying this principle of local hypersensitivity and its effect on attempted inoculation to our study of infection, it offers a key to the determination of the primary focus and the secondary metastasis.

Why the Apex of the Lung is Involved in the Adult, While Any Position May Be Involved in the Child. In discussing this question the very fact that infections in childhood are more apt to be non-pulmonary than pulmonary, while infections in adult life are more commonly pulmon-

ary, and not only pulmonary, but begin at the apex of the lung, leads to the natural inquiry as to what difference exists in the conditions which surround infection in child life and those which surround it in adult life. The involvements of the lung, bone, joint, meninges, or other structures than the glands, must be looked upon for the most part as metastases, which take place through the blood, although it is possible that bacilli might be taken in through the mucous membranes, particularly those of the intestinal tract, and be carried through the thoracic duct and poured directly into the blood stream, to be strained out in any of these parts, without a primary focus occurring in the lymphatic glands. Such bacilli would go through the lung first, and in case they should escape lodgment in the pulmonary capillaries, might go on and produce infection in some portion of the systemic circulation; but statistics show that bacilli in the child are less prone to find lodgment in the capillaries of the lung than they are in other portions of the body. The fact that predisposition to pulmonary involvement does not exist in the child, therefore, leads us to the inquiry, is there any anatomic or physiologic difference between the lung in child life and adult life which would make it, particularly the apex, more prone to involvement than any other portion of the body? In answer to this question there are very important changes which take place and which seem to be fully capable of making this difference in localization. These are the changes which come about in the shape of the thorax and the growth of the lung as the child increases in years.

At birth the jugulum is on the level with the last cervical vertebra, but after the child has assumed an erect position for a time, the anterior wall of the chest drops. This proceeds rapidly, so that by the time the child is six or eight years of age the anterior portion of the first rib is on a level with the third dorsal vertebra. In this sinking of the anterior portion of the chest the apices of the lungs are crowded together at a time when the lungs as a whole are increasing in size. Consequently the respiratory motion is relatively lessened, and this favors retardation of the blood and lymph flow in the apices of the lungs, and in this way favors the implantation of tuberculous bacilli at this point. This disposition is particularly exaggerated at puberty when the lung takes on an enormous increase in growth, doubling in size within the space of one or two years. The upper portion of the chest being flattened, this increase in growth is reflected in a relatively greater apical compression. As arguments in favor of this being a factor, I would like to call attention to the further fact that the primary metastases rarely occur in the base of the lung, where the motion is not retarded; and I would further call attention to the fact that the same localization of carbon takes place in the lungs as of bacilli. While in the child the pulmonary tissue itself is

comparatively free, the peri-bronchial glands and sub-pleural spaces being filled, in the adult the pulmonary tissue itself, particularly in the apices, is studded with carbon, while the pulmonary tissue in the lower lobes is comparatively free.

A Physiological Suggestion for the Cause of the Small Heart. The small heart in tuberculosis has been the subject of a great deal of discussion from the time tuberculosis first assumed clinical importance. Benecke, Rokatansky, and others observed post mortem that the heart was often small in tubercular cases, smaller than in other individuals. Brehmer, being convinced by their observations, decided that tuberculosis was due to the inability of the small heart to nourish properly the lung, and consequently founded a therapy on the principle of improving the functional capacity of the heart. When he established his sanatorium at Goehersdorf he built it at the bottom of a hill, and laid the grounds out in paths representing certain definite grades; and each patient, according to the functional capacity of his heart, was assigned a certain amount of hill climbing to do. This was guarded most carefully by Brehmer, and a systematic therapy based upon exercise, was established.

The fact that the heart in tuberculosis is small has been substantiated later by clinicians and particularly by the orthodiograph. The important fact has been brought out that not only is the heart small in late tuberculosis, where it might be due to general malnutrition and degeneration of tissues, but also in early tuberculosis, where the tissues have not yet suffered degeneration. In this connection, the small heart is found in persons of normal build as well as those of enteroptotic build. Further observation brings out the important fact that there are other conditions in which the small heart is found. It is found in the individual of the enteroptotic build. If we compare the enteroptotic individual and the tuberculous, particularly one suffering from early tuberculosis, we find one condition in common which produces changes in the cardio-vascular system. A striking feature is common in the deficiency in the inspiratory act. In both of these types of individuals we have a deficiency in the action of the diaphragm. In the tuberculous, not only the diaphragm, but other muscles of respiration are limited in action. Wenckebach¹ has described this very fully on the part of the patient suffering from enteroptosis. The writer² has called attention in numerous papers to the effect of a deficient inspiratory act upon the tuberculous individual.

The maintaining of the normal circulation of the blood depends primarily on the action of the heart itself and the condition of the blood vessels, but secondarily, the circulation is greatly facilitated by the inspiratory act. The inspiratory act opens up the chest cavity, increases the negative pressure in the large veins and heart chambers, and in this way sucks the blood into the right heart. This action at the same time re-

lieves the systemic veins. When there is any deficiency in the inspiratory act, as we find consequent upon a deficient action of the diaphragm in enteroptosis and because of the reflex disturbance on the part of the diaphragm, as well as other respiratory muscles in tuberculosis, we have a lessening of the suction action on the circulation and a reduction in the amount of blood delivered to the heart, consequently a reduced amount of blood in the heart and a reduction in the output of the ventricle. The condition which produces this change being constant in tuberculosis, the heart is obliged to accommodate itself to a lessened content and a lessened output, and as a result of this it becomes smaller in size.³

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ACUTE OTITIS MEDIA IN INFANCY AND EARLY CHILDHOOD: AVOIDABLE MISTAKES IN DIAGNOSIS, PREVENTION, TREATMENT.*

BY WM. R. P. EMERSON, M.D., BOSTON,

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ACUTE otitis media is, I believe, the most frequently overlooked affection of infancy and childhood. Not only is it not correctly diagnosed by the profession as a whole, but it is also sometimes overlooked by the pediatrician, and in infancy its significance is often underrated by the aurist himself. The prevalence of this disease is due to the relative increase in frequency of nasopharyngeal affections in early childhood, and the readiness with which the necessary sinuses are blocked, which, in the case of the Eustachian tube, leads to the formation of a closed cavity in the middle ear with consequent infection and abscess formation. It is difficult to realize that earache is not localized in infancy. In childhood also, where otitis media occurs as a complication, this symptom is obscured by the general toxemia. The symptoms of acute otitis media may be those of pneumonia, of meningitis, abdominal or simply an intensification of symptoms due to the disease which the otitis complicates. As this disease so frequently leads to involvement of the mastoid cells, to edema of the brain, or to the entrance of bacteria into the general circulation, failure to make an early diagnosis may be fatal. An appreciation of the significance of this affection should lead to the taking of proper steps to remove causes that may seriously affect the hear-

ing, the development and the future health of the child. The following cases illustrate the more common sources of errors in diagnosis.

CASE 1. Alice D., age two years, previously well, began to be feverish and vomited on the morning of December 13. She put her hand to her right side saying "hurt". Her bowels had not moved for two days. She had a history of digestive upset the previous summer and Thanksgiving. At five o'clock in the afternoon her temperature had increased to 104 and she had a convulsion. Her attending physician made a diagnosis of an inflammatory process in the abdomen and considered an exploratory operation.

She was seen in consultation at 6 p.m. Her physical examination was negative except for signs of adenoid tissue in her throat, and the presence of marked abdominal tenderness. An examination of the right ear showed slight congestion along the handle of the malleus. The ear was opened by Dr. Frederick Jack. The patient almost immediately fell asleep. Next morning the temperature was 100. At two o'clock it was 102.6 and at six o'clock 105 and the patient had another convulsion. An examination of the other ear showed a condition of the drum similar to that of the first. The second ear was opened by Dr. F. P. Emerson. The next morning the temperature was normal and remained so. There were no further symptoms except for a slight discharge which continued for 48 hours.

CASE 2. Stephen G., age three years, was brought into the out-patient department of the Boston Dispensary. His temperature was 104, his mental condition clouded. He had general tenderness of the muscles, retraction of the head. Kernig's sign was present. In the chest there were signs of bronchitis. A diagnosis of early meningitis was made in spite of the withdrawal of 20 c.c. of clear fluid by lumbar puncture and a normal cell count. A consultation in the out-patient department was held and a second diagnosis of broncho-pneumonia with cerebral symptoms made. He was admitted to the writer's service in the hospital where the ears were examined for the first time. Both drums showed very slight congestion along the handle of the mallei. A double paracentesis was done by Dr. Edward R. Newton, and a drop or two of pus was found in each ear. Next morning the temperature was 100. The cerebral symptoms had disappeared. The temperature gradually returned to normal, the bronchitis cleared up in eight days, and the patient was discharged with a diagnosis of acute bronchitis complicated by a double otitis media.

CASE 3. Edward H., age two years, eight months, had been sick ten days with measles. On Thursday he was doing well. On Friday he began to manifest signs of abdominal pain, which seemed to be paroxysmal. Hot fomentations were applied to the abdomen for most of the night with no relief. The next day the ear drums showed very slight congestion in the upper quadrant, so slight as to make a diagnosis of an inflammatory process uncertain. On the fourth day his condition grew worse, accordingly a free incision was made in each drum by Dr. F. P. Emerson and a drop of pus seen in each ear. Eight hours later the child showed some improvement. The paroxysmal pain disappeared and in 24 hours the patient was comfortable. During this time the temperature varied from 101 to 102.5 and showed no

* Read before the meeting of the New England Pediatric Society, April 30, 1915.

rise with the exacerbation of symptoms. The ears discharged moderately for two weeks when the patient had apparently recovered from the otitis.

However, the prostration was so great that the child was not able to speak for five weeks. On recovery from his sickness it was found that his speech and mental development were put back practically a year. It seems reasonable to believe that the dangerous character of this illness was due to the otitis rather than to the measles.

CASES 4 AND 5. Catherine D., age three years, nine months, had had a cold for a week with slight cough. She became feverish and restless. Her temperature was found to be 102.2. Her physician made a diagnosis of slight bronchitis. The mother asked the physician to examine the ears, which he did not do, but tested them with a watch, pronouncing them all right. The next day the ear drum ruptured and was followed by a profuse purulent discharge which continued for eight days, the patient's temperature ranging from 99 to 101. On the eighth day the other ear was examined only as a matter of routine but found bulging. It was opened under ether by Dr. Harold Walker and at the same time a wider opening was made in the first ear. The temperature the next morning was normal and remained so aside from rising one degree each afternoon. Both ears discharged profusely for about two weeks.

During this time a sister, Beatrice, aged twenty months, was convalescing from broncho-pneumonia. After two weeks of normal temperature she suddenly showed restlessness, the temperature rose to 103.5. The left ear drum showed very slight congestion in the upper quadrant. Measures were adopted to open the Eustachian tube without success. Four hours later the temperature had risen to 104.2 respiration 52. The ear drum was opened by a curved incision, a slight bloody discharge followed. No pus seen. The next morning the temperature was 99, all symptoms disappeared. There was a slight serous discharge for two days and no further symptoms.

Although these cases are selected simply to represent the most common types of aural complication, the following points are of interest: In none of the five cases were there symptoms of earache. In two cases the symptoms were all abdominal, in one meningeal, and in two general, associated with fever. In all of these cases the diagnosis of acute otitis media was made by routine examination of the ear drums, not by localized pain or tenderness. In three cases where the drums were opened promptly with the onset of the symptoms, without waiting for bulging or pus, the symptoms subsided in 24 hours, the discharge in 48 hours, and the duration of the affection was only three days. When there was delay in opening the drum because of failure to correctly diagnose the otitis, a profuse purulent discharge continued for more than two weeks, prostration was extreme, and the ear drums showed considerable resulting injury. Four of the five cases had a double otitis.

From such histories as these it seems fair to conclude that if the attending physician does not examine the ear, in the great majority of cases the diagnosis of otitis media will not be made.

This conclusion is further substantiated by statistics given in 1912 by Dr. C. R. C. Borden based upon the careful study of the clinical records of over 2000 cases of scarlet fever, measles and diphtheria at the Boston City Hospital, and upon the pathological records of 252 autopsies performed by Drs. Councilman, Mallory and Pearce.

	Per Cent.
Clinical diagnosis of otitis media in scarlet fever	11
Pathological " " " " " " " "	94
Clinical " " " " " " " " measles	28
Pathological " " " " " " " "	100
Clinical " " " " " " " " diphtheria	2.9
Pathological " " " " " " " "	82

In other words in over 2000 cases of these diseases otitis media was clinically diagnosed in less than 15%, but in 252 fatal cases otitis media was found present in 92%. There was also found in the 252 autopsy cases, 59 cases of mastoiditis, of which only 6 or 8 were recognized during life, and with but one exception one side was operated on when both were affected. Eighty per cent. of these cases of mastoiditis showed edema of the brain, but the reports also showed that a large number of the affected middle ears had edema of the brain even when there was no mastoiditis. This report reveals an extraordinary situation that has not received sufficient attention. The difference between the clinical and pathological diagnosis is to be explained, I believe, by one reason, namely that the ears were not frequently examined.

This report shows clearly that an examination of the ear drums on admission to the hospital or at the physician's first visit, and additional examinations made only when there are symptoms of otitis, is not sufficient.

In infectious diseases and in all diseases of the respiratory tract the ears should be examined at every visit of the physician to his patient, with as much reason as he would examine the heart in rheumatism or the abdomen in typhoid fever.

Why is this not done?

Perhaps the most important reasons are the discomfort caused the patient by the use of the head mirror and speculum, the special training required for their use, and the difficulty in seeing the drum in infancy and early childhood.

There are now on the market electric ear instruments that have a light inside the speculum that illuminates the whole drum so that it is possible for even an untrained person to get a clear picture without disturbing or alarming the child. With the patient in bed both ears can be examined from the same side with only a quarter turn of the patient's head. One opening in the speculum has a small magnifying glass that is of service in seeing the drum, and in case of paracentesis the point of the knife may be placed through a second opening and inserted into the drum under direct observation and the incision

directed as necessary. The light is so near the drum that small particles of cerumen or even a discharge in the canal do not seriously interfere with vision. With these instruments both ears can be quickly inspected without disturbing a sick patient, and abnormal conditions can be detected that are easily overlooked with a poor light or even with a good light but one that differs from that to which the examiner is accustomed. These advantages, immaterial in examining the ear drums of older children, may be vital in the case of infants whose canal is so small as to make a thorough examination with head mirror and speculum difficult, and frequently impossible.

PREVENTION.

In all primary infections of the respiratory tract and especially in affections of the respiratory tract secondary to contagious diseases care should be exercised to keep the nasopharynx free from mucous and crusts that may cause occlusion of the Eustachian tube. Two or three drops of liquid alboline or of a 10% solution of argyrol may be introduced into each nostril three times a day. During the stage of acute nasal congestion steam inhalations are helpful. An even temperature should be maintained in the room. The child should be protected from strong winds and dust. The air in overheated houses and flats becomes exceedingly dry and consequently irritating. Receptacles for water attached to the side or placed on top of radiators will evaporate one to two gallons daily, appreciably increasing the humidity. In older children the use of the following ointment:

R		
Menthol	gr. vii	
Eucalyptol	grs. vii	
Lanolin	5 vi	
Vaseline	5 ii	

applied inside the nostril protects the congested turbinates and so keeps the nares clear. Also in older children in case of excessive discharge from the throat, irrigations of hot normal salt solution two or three times a day frees the nasopharynx from muco-pus. The irrigation may be done by the physician with a metal syringe or by the nurse with a fountain syringe, inserting the glass part of a curved eye dropper into the end of the rubber tube and so directing the stream into the throat and allowing it to flow out into a pus basin with the patient lying in bed. A spray of menthol, 5 grains, and benzoinal, 1 ounce, should be used with an atomizer to protect the inflamed mucous membrane from irritation. Swabbing the throat with iodine, 20 minimis, to the ounce of glycerine, is also useful. When such measures are taken there is less cough and, therefore, less danger of forcing bacteria into the Eustachian tube.

TREATMENT.

If, notwithstanding these precautions, the Eustachian tube becomes occluded and the drum membrane begins to show congestion along the handle of the malleus, the following treatment should be given to open the tube: a mixture of four drops of adrenalin solution, 1 to 5000, and cocaine one-half of 1%, should be allowed to flow through the nostril on the affected side, back into the throat, the patient's head being tipped backward in such position as to cause the solution to flow towards the orifice of the tube. This should be followed in five minutes with a few drops of a 20% argyrol solution, which by its higher specific gravity keeps the tube open. This should be repeated in three hours if there is pain. Frequently the symptoms, congestion and temperature, will disappear with this treatment. If, however, the inflammatory process continues to progress and the symptoms increase, the drum should be incised without waiting for bulging or pus. The operation should be performed by the aurist, if available, otherwise by the attending physician, because the majority of these cases have a mixed infection and a delay of even a few hours may result in rupture of the drum and burrowing of pus into adjacent structures. The attending physician can safely make a curved incision of the drum, extending from the posterior lower quadrant up to the attic under direct vision, using the ear instrument previously described. A rapid fall in temperature and alleviation of symptoms should follow. Repeated incisions should be made, if necessary, for free drainage, but it should be remembered that obstruction of the Eustachian tube in the throat may prolong a discharge from the ear. In infants etherization is not necessary, but in older children enough ether should be given to allow time for a careful and accurate incision. The other ear should be watched with special care as a double otitis is frequent.

CONCLUSIONS.

In every case of contagious disease and of affections of the respiratory tract in children, measures should be inaugurated at once to keep the nasopharynx clear and so maintain drainage through the Eustachian tube. In such cases the ear drum should be inspected at every visit of the physician to his patient.

An electric ear instrument gives a clear picture of the drum with a minimum disturbance of the child.

In cases of otitis media when the symptoms and the local condition do not improve under treatment the drum should be incised by the aurist, if available, otherwise by the attending physician, without waiting for bulging or pus.

Every child, after an attack of acute otitis media, should have his epipharynx examined and treated by a specialist trained to recognize the close relation of the nasopharynx to the ear.

CAN THE SPEECH PRESENT A SIGN OF
CONGENITAL SYPHILIS?*

FIRST NOTE, THREE CASES.

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I MAKE no apology for presenting a paper before a scientific society in the form of an interrogation rather than in the usual form of a positive statement. My reason for doing so is three-fold: First, I lack the clinical material to carry the investigation on to the final stages; secondly, I wish to inspire others to undertake the observations themselves; and, thirdly, I may possibly be able by this form of presentation to divert a few cases to my own clinic for investigation.

Several of the many varied symptoms of congenital syphilis show certain definite characteristics. One of these is "Hutchinson's teeth." This sign of congenital syphilis is one that we usually expect. It is a failure in complete bone development; that is, it is the result of a nutritional lack which stops the final outgrowth of bone. This symptom itself is usually looked upon as strongly indicative of the syphilitic lesion. It is not pathognomonic.

Most of us have heard of the malnutrition of bone and regard that also as another strong indication. This symptom, which is known as seaphoid scapula and which has been presented by Graves¹ of St. Louis, is another lack of bone growth that may be caused by syphilis in its congenital form. Graves acknowledges that this symptom is not one which is pathognomonic of the lesion in question, yet it nevertheless can be caused by it. He therefore would base a diagnosis upon the existence of other signs of the same kind; and when this one is present with the others, he considers that it, too, has been caused by the syphilitic infection.

"Hutchinson's teeth" are found by simple observation. The seaphoid scapula is determined by palpation or through the employment of an x-ray. Any sign that the voice may present is naturally detected by the way the voice sounds to the ear. Thus if there is any sign in congenital syphilis that appears in the voice, it will naturally be one that without further examination can be detected acoustically. Inspection of the vocal cords should follow.

Several interesting cases which have come under the observation of the Voice Clinic at the Psychopathic Hospital have led me to ask my question. The chief of these is the appearance of three congenital syphilitic cases with voices of similar nature. Those cases I should like to present in very brief form:

CASE 1. E. W., girl, 10, Russian, school grade 6. Complaint: hoarseness.

P. I. Voice has never been clear. For the last year considerably worse. Very hoarse when crying.

P. H. At 8 months, diphtheria; at three years, measles. Nose once broken. One year ago tonsils and adenoids removed. Promised voice cure that never materialized.

F. H. Father and mother living and well.

P. E. Negative except for seaphoid scapulae and deeply notched upper incisors (Hutchinson teeth). No tibial exostoses. Wassermann positive.

Vocal Examination: Vocal elements all normal except S, which shows slight right lateral stigmatism. Vocal tone is in general very monotonous and on a pretty constant low pitch. On attempt to sing the scale beginning at C' (256) the last two or three notes are hard to execute, ill-sustained, and often break. Voice tires quickly, especially upon high notes. Had a peculiar "tinpanny" cry when a baby.

CASE 2. S. B., boy 10, school, Russian.

P. I. Complaint: Lips and talks in a whisper. Began to talk by lisping; and by saying his words in a whisper. Now converses in a rough, rasping, harsh voice. Used also to stutter, but now shows no sign of it.

Vocal Examination: Fricatives and explosives all normal. No stutter. Every utterance accompanied by a vocal cord rasp, giving a certain uniform hoarseness. Whisper is clear in all forms of enunciation. Edges of both vocal cords are thick, white and hardened. Right vocal cord markedly bowed outward. That is, the finer edges are absent.

P. H. Four-five, measles; nine, adenoids and tonsils.

F. H. Immediate family negative. A cousin "insane."

CASE 3. C. N. Seaphoid scapulae.

Hoarse since birth. Father same. Heart misses a beat in every four. Otherwise negative.

Wassermann positive.

In these three cases congenital syphilis was our diagnosis.

All these cases presented a certain type of voice which has the following characteristics:

SYPHILITIC TYPE OF VOICE.

The characteristics that were noticeable were a harsh, squeaking, monotonous tone, noticeably intense, a considerable tenseness of the vocal organs, absolutely no flexibility and little or no change in pitch. Besides these things, after treatment though long-applied, persistent vocal drill, only slight changes, if any, resulted.

The failure of any treatment and the consequent impossibility of adding any flexibility to such a voice naturally gave rise to the conclusion that the organs of production were permanently changed. The evidence further showed that the change was not only permanent but marked. It was such that the vocal cords could be used in only one way; and this without any possibility of development, variation, or learning ability—a functional incapacity.

Beyond showing the permanency of this change, the vocal sounds indicated the kind of change, as well. It was monotony of voice, or, in

other words, a lack of flexibility. This logically indicated that the edges of the vocal cords were immovable, rounded and hardened. For this reason minute vibrations could not occur, and a change of pitch was out of the question. Consequently a variation in tone that would otherwise be flexible was also impossible.

From the character of the sound, then, and from the monotony of it we are able to infer that the change is permanent; and that it was either a thickening or hardening of the edges of the vocal cords, or, better, a lack of development in the edges of those vocal cords. Inspection confirmed this diagnosis.

I have been unable to photograph any of these cases so as to show you how the vocal cords are hardened, but I think we may come to some tentative conclusion even without that evidence. My question, then, is this: If we can have a syphilitic infection that results in the non-development of a certain area of the two upper frontal incisors; and if in the same manner we can have a lack of bone development in the scapulae that can result in a marked deformity, and a deformity so marked that it can be dignified with the new name, scaphoid scapulae; why can we not likewise have such a mal-formation of the cartilages of the vocal cords that those cartilages will be unable to function in their finer forms and can merely externalize voice as a harsh, rasping, monotonous tone?

He who meets continually the individual cases often has a chance to see conclusions that others can not draw from the words. I feel that I am in that situation, yet I do not feel that the conclusion which I draw is as final as more evidence in further investigation will be able to make it. I should remind you that perusal of the literature reveals no description of this sign.

CONCLUSION.

I conclude from these three cases that there is a voice sign in congenital syphilis which manifests itself in a harsh, rasping, monotonous, low-pitched voice that is at most only slightly, and usually not at all, amenable to any sort of treatment. I bring the question up as a point of discussion to be taken up by you and threshed out in still better form. I trust either that my question will elicit markedly destructive data to settle the query in one way; or that the discussion will present fuller and clearer evidence than I have been able to find, and that corroborative criticism may more completely establish my conclusion. My answer to the original question is positive.

SUMMARY.

Congenital syphilis can cause a faulty or incomplete development of vocal cords that results in vocal monotony and harshness in both conversation and weeping. As spirochaetosis has

been of late offered² to cover all the lesions of syphilis, I propose as a name for this sign *scaphoid vocal cords and spirochaetic harshness*.

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Clinical Department.

AN UNUSUAL CASE OF OBSTRUCTING PROSTATE DIAGNOSTICATED WITH DIFFICULTY FROM TABES.

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AND
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In the belief that we learn by our mistakes, and that the ultimate solution of any difficult problem in differential diagnosis may be of benefit, not only to the individual physician, but to the profession in general, we wish to present the following case:

CLINICAL SUMMARY:

A. M., a man of 42 years, had been absolutely well, with the exception of one attack of gonorrhœa in youth, until six months previous to December, 1914. He then began to have difficulty and increasing frequency of micturition with incontinence at night. No retention. Had passed no blood or gravel. There had been no pain, but a sense of burning at the beginning of micturition. Had also had considerable dull pain in the lumbar region, especially on the right, but no symptoms especially referable to the kidney. No nausea or vomiting.

He had lost 25 pounds weight in the six months. For four months his sexual power had been decreasing and of late there has been none at all.

Further inquiry found no symptoms referable to the nervous system, especially important in connection with a possible diagnosis of tabes, though the patient admitted transient diplopia a number of years ago. He denied syphilis, though his wife had had five "accidental" miscarriages since the birth of two healthy children.

Physical Examination. A pale, emaciated man. Looks weak and sick. Superficial arteries not thickened. Blood-pressure 130 m.m. systolic, 75 m.m. diastolic. Tongue moist, slightly coated. Lungs negative. Heart shows systolic and diastolic murmurs over the aortic area, presumably originating from the aortic valve; the pulse suggesting the Corrigan type. No evidence of a dilated arch. Abdominal examination negative, except that urinary bladder is greatly distended. External genitals negative.

Patient passed about five ounces of cloudy urine

and felt "as if he had more to pass." Urine acid, would not filter clear, very slight trace of albumin, no sugar. Sediment showed much pus, few epithelial cells, many motile bacilli. No blood, casts or crystals seen. Calibration of the urethra showed no stricture. A soft rubber catheter passed easily to the bladder, withdrawing (on several occasions) 18-20 ounces residual urine. *The prostate by rectum was normal in size and consistency.* The seminal vesicles were considerably distended, but not indurated.

With no evidence of stricture of the urethra, or of prostatic obstruction, a cystoscopy was done (J. D. B.). This was easily performed under local anesthesia (alypin). There was no pain or intolerance. The bladder was generally reddened, but the mucosa was smooth, and not edematous, or ulcerated. The bladder wall throughout was markedly trabeculated, a characteristic of obstruction, not only of mechanical, but of nervous origin*. The ureters looked normal. A No. 6 flute-tipped catheter passed easily to each renal pelvis, there being a good flow, in normal ureteric rhythm, of clear urine from each side. *No enlargement of the prostate could be made out.* High up on the right wall there was seen a round opening, the size of a dime, like that of a diverticulum, but a ureteral catheter would enter for only about half an inch.

While the diagnosis was still in doubt there was some evidence of the presence of a diverticulum (which might well have occasioned the bladder symptoms) a possibility borne out by the fact that when the bladder was filled there was an indefinite, rounded, tender mass to be felt deep in the right iliac fossa.

X-ray of the bladder, distended with air, showed it to be conical in shape, with the apex drawn well over to the right side, undoubtedly giving rise to the findings already described.

In view of the obscure nature of the case, and the absence of any demonstrable mechanical obstruction, a careful examination of the patient's nervous system was made (J. B. A.). There was no abnormality of reflexes, although the pupils were both irregular, but equal, reacting fairly well to light, better to accommodation. No disturbance of sensation, superficial or deep. No Romberg or difficulty in gait. No palsies. Laboratory tests were performed with the following results.

Blood. Wassermann, negative (even with cholesterol reinforced antigen). A Wassermann test done later on the wife's blood was also negative.

Stained Smear. Normal.

Spinal Fluid. Pressure 210 m.m. (aq.); cells one per cmm.

Proteids not increased.

Gold Solution. "Suspicious of syphilis." (Report of laboratory at Massachusetts General Hospital.)

The diagnosis, therefore, lay between an early and obscure affection of the central nervous system, and a diverticulum of the bladder, but there was no adequate basis for either diagnosis. The possibility of an obstructing prostate was practically disregarded. As there was little or no change in the ability of the patient to empty his bladder, even after several days in bed and with frequent catheterization, operation was decided upon. This decision was reached only after careful deliberation, and the tentative conclusion that syphilis of the central nervous system

could be excluded. The daily amount of urine was well over 50 ounces.

Operation. (J. D. B.) Spinal anesthesia with tropococain 1.5 c.c., a little ether being given to offset the extreme mental excitement. Suprapubic cystotomy. Bladder opened without difficulty. Careful exploration showed no diverticulum, the aperture on the right wall of the bladder seen with the cystoscope being only a saucer-like depression. Bladder wall much thickened and trabeculated throughout. Median lobe of prostate found to be the size of the first joint of a man's thumb, overhanging the urethral orifice, and acting like a ball-valve. This was enucleated without difficulty, and no other masses of adenomatous tissue were found. The bladder was closed tightly around a large, soft rubber tube, a small rubber tissue wick was placed to the prevesical space, and the abdominal incision was closed in layers.

Microscopic examination of the enucleated specimen showed simple adenoma.

Convalescence was uneventful. The patient has recently been seen by one of us (J. D. B.) on two or three occasions, six months after operation. He has gained 15 or 20 pounds and is in good general condition. His appearance is that of perfect health. The condition of the sex function is unchanged. Urination is painless and free, occurring only four or five times a day. There is no nocturia. The urine is practically clear, and there is no residual whatever.

SUMMARY AND DISCUSSION OF DIAGNOSIS.

A man of 42 presents a progressive motor disability of his bladder, coupled with loss of weight and sexual power, of six months' duration. Local examination fails to reveal an adequate cause. The negative examination for bladder obstruction, the finding of a trabeculated bladder mucosa, the associated loss of sexual power, irregular pupils, reacting poorly to light, evidence of disease at the aortic valve, combined with the history of five miscarriages in the wife, make strong evidence for the diagnosis of syphilis and of spinal cord disease. On the other hand examination of the nervous system fails to show any supporting evidence in favor of the latter, and tests are found negative for active syphilis (the "suspicious of syphilis" report from the "gold test" is not to be taken too seriously at the present state of our knowledge of this test).

While it is our conviction that bladder retention may be the first and for some time the only clinical symptom of tabes, as already pointed out by one of us (J. D. B., *loc. cit.*), it is also our experience and belief that progressive bladder retention is probably never the sole manifestation of this disease. One or the other of the newer laboratory tests will reveal the true nature of the case. Therefore, in view of the negative findings in the nervous system, but more especially on account of negative findings in the spinal fluid, tabes was excluded and operation advised.

This case is cited in full on account of the diagnostic maze through which the true diag-

*Barney: BOSTON MED. AND SURG. JOUR., Vol. clxiii, No. 25, pp. 933-937.

nosis emerged and was forced upon us, largely on account of reliance upon the newer laboratory tests. While it is hard to understand how a lobe of the prostate, as large as the one removed from this patient, could escape detection by the cystoscope, such an experience is not unique. One of us (J. D. B.) has since had a similar case in which the enlarged median lobe was demonstrated only after repeated observation with the cystoscope. The soft, pedunculated lobe, hanging over the urethral orifice, like a cherry on its stem, may be flattened down by the cystoscope in such a way as to escape observation.

REPORT OF AN INTERESTING STOMACH CASE.

BY FRANK E. LEWIS, M.D., NEWTON, MASS.,

AND

RALPH D. LEONARD, M.D., BOSTON.

THIS case is reported not alone for its surgical aspect but also for the fact that it shows the inestimable value of the x-ray in the diagnosis of obscure cases of stomach conditions.

Marg. C. was seen October 3, 1914. At this time she gave the following history: Single, 39 years of age. Vocation, domestic.

F. H. Negative. No history of cancer or tuberculosis.

P. H. No serious illness until 1904 when patient had typhoid fever followed by pneumonia.

P. E. Patient slight of stature, anemic and markedly emaciated. Weight, 90 pounds. Pupils react to light and distance. Fundi normal. Teeth in fair condition. Breath very foul. Mucous membrane pale. No glandular enlargement. Lungs resonant throughout. Heart sounds clear and regular. Level of the abdomen below that of the thorax. Slight tenderness and resistance in the epigastric region. No masses felt. Vaginal examination negative. Reflexes normal. No edema of the extremities.

P. I. Present condition dates back to 1905 when patient first began to be markedly constipated. This condition was accompanied by occasional vomiting. In the fall of 1906 patient had a typical epileptic convulsion during which patient vomited a large amount of material with an offensive odor. Since 1906 these attacks have occurred on an average of twice a month. The vomiting which at first was only occasional became a more pronounced feature until finally the patient was vomiting regularly 30 to 40 minutes after each meal (Aug., 1914). The only pain noted was a slight burning sensation that came on just before vomiting. Patient said she noticed that the stools had been dark in color during the last few months. Never noticed whether there had been any blood in the vomitus. Appetite has been getting poor and patient has lost a great deal of weight.

Urinalysis. Sp. Gr. 1020, no albumen, no sugar, acid in reaction, marked indicanuria. Blood examination showed a secondary anemia. Positive Guaiac test obtained from the stools and vomitus. Stomach contents showed a slight increase in hydrochloric

acid and a small amount of stasis. Wassermann negative.

Patient was advised to have x-ray examination of the gastro-intestinal tract. Following is the report of the röntgenologist:

REPORT OF THE RÖNTGEN EXAMINATION MADE OF MISS C.

Esophagus. Appears normal in all respects. There is no "hesitation" at the cardia.

Stomach. Under the fluoroscopic screen, there is seen on the lesser curvature, mid-way between pylorus and cardia, an area of "rigidity" about an inch and a half long. Normal peristaltic waves do not affect the outline of this area nor can the area be moved by palpation. Opposite, on the greater curvature is a permanent incisura, producing a typical hour-glass stomach. There is no marked esophageal reflux.



Roentgen Picture.
Showing:
(1) High gastric ulcer.
(2) Duodenal ulcer with perforation.

Duodenum. On the upper and inner edge of the first portion of the duodenum is a small diverticulum about one-half inch in diameter. The isthmus forming the neck of the diverticulum and opening into the duodenal "cap" is about three-quarters of an inch in length with a diameter of a thread. Opposite on the outer and inferior edge of the "cap" we find a small permanent incisura.

Small Intestine. Shows nothing abnormal save that the upper coils of jejunum overlie the antrum of the stomach and the first portion of the duodenum. These coils are fixed in this position.

Colon. Shows nothing abnormal except moderate ptosis.

Diagnosis. Chronic gastric ulcer on lesser curvature with hour-glass stomach. Chronic perforated duodenal ulcer with adhesions tying down some of the jejunum.

The diagnosis having been made, the patient was advised to have an operation, to which she consented.

Patient entered the hospital Oct. 14, 1914, one week before operation. The bowels were thoroughly

cleaned out with daily enemas and catharsis. The stomach was washed daily with boric solution. Intravenous saline was administered the day before operation.

Operation Oct. 20, 1914, Fred B. Lund, M.D., and Frank E. Lewis, M.D.

Abdomen was opened by a high, left median incision. Contrary to expectation, the stomach was found to be fairly movable. There were many dense adhesions on the posterior part of the stomach which were not freed. The stomach itself was of the textbook "hour-glass" type, the isthmus between the cardiac and pyloric portions being very narrow. On the lesser curvature was a hard, rigid area, evidently a healed ulcer. Opposite to this on the greater curvature was a deep incisura. The pylorus was soft and patent, two cm. from the pylorus on the duodenum was a mass of adhesions, evidently the place mentioned in the x-ray report. The appendix was normal. A posterior gastro-enterostomy was performed between the cardiac pouch of the stomach and the upper part of the jejunum. The constriction between the pouches of the stomach was relieved by a plastic operation which included the excision of the ulcerated area. In this last step vigorous hemorrhage was encountered and the patient's condition became alarming. The stomach was washed out thoroughly with saline and the abdominal wound closed. Profound shock followed the operation for the first twenty-four hours. After this, however, the convalescence was uneventful.

RESULTS.

Since the operation the patient has had no vomiting and the epileptic fits, which were such a prominent feature, have entirely disappeared (May, 1915). One of the best features is the relief from constipation. The patient's weight which was 90 pounds at the time of operation is now 114 pounds.

Reports of Societies.

NEW ENGLAND PEDIATRIC SOCIETY.

MEETING OF APRIL 30, 1915, WAS HELD AT THE BOSTON MEDICAL LIBRARY.

The President Dr. E. M. BUCKINGHAM of Boston, in the Chair.

The following papers were read:

- I. CAN THE SPEECH PRESENT A SIGN OF CONGENITAL SYPHILIS?¹

W. B. SWIFT, M.D., Boston.

- II. ACUTE OTITIS MEDIA IN CHILDHOOD: AVOIDABLE MISTAKES IN DIAGNOSIS, PREVENTION, TREATMENT.²

W. R. P. EMERSON, M. D., Boston.

- III. STUDIES IN BRONCHIAL GLANDS.

W. W. HOWELL, M. D., Boston.

- IV. ENDOCARDITIS IN CHILDREN: ITS PROPHYLAXIS AND TREATMENT IN AN OUT-PATIENT DEPARTMENT.³

R. S. EUSTIS, M. D., Boston.

DISCUSSION.

DR. W. P. COLES: Among the symptoms which Dr. Swift did not mention and which one sees from time to time are the large, soft, dilated veins on the abdomen and chest; another is the saw-line of the epiphyses, both of which are not absolutely diagnostic, but very suggestive. I think that Dr. Swift's paper brings up also the question of third generation syphilis which most American syphilographers do not admit, or at least admit very guardedly as being possible. To those who are skeptical on this subject, the perusal of Fournier's recent book, 1912, "Late Hereditary Syphilis of the Second Generation," will be a revelation.

I was very much interested to see that the Wassermann in this case was doubtful, as we have had in our clinic several cases of the same sort. Some cases have shown gumma of the glands of the neck, and this is a point which we do not always think of.

Question: May I ask if the hoarseness is permanent and does not change?

DR. SWIFT: Yes.

DR. WALTER B. SWIFT (closing): I am glad so many have taken interest enough to discuss my paper. I regret, however, that Dr. Post could not return from Buffalo in time. He holds that the clinical side of syphilis still needs working up in researches and should not be neglected for the serological side. He believes in my voice sign in congenital syphilis and considers it a symptom of some value.

I notice no dissenting in the discussion this evening, no one has offered any evidence that undermines this claim of a speech sign in hereditary lues. As far then as a preliminary note, though as yet unconfirmed, it stands unattacked.

In answer to Dr. Solomon, I would say a word about frequency. Of course, I have not had enough cases to establish any frequency. These other signs, Hutchinson's teeth, tibial exostoses and interstitial keratitis all have their relative frequency: A matter can be established only by having a large number of cases and making a thorough examination of every point in each.

In response to Dr. Coles I would say that it was not my purpose to be exhaustive in the presentation of symptoms. He seems to know them all! I merely present at this time what I consider as evidence enough to establish a voice sign as a new symptom.

In response to Dr. Brown, I would thank him for participating in the discussion and presenting his valuable data. I wish you all had said more to undermine my claim. It is unfavorable criticism I like best. We learn most from that.

That speech alone should have brought these patients to the Voice Clinic is significant. It shows that the speech was the one organ affected in a marked way. It shows that the speech sign was the only one noticeable. It shows that here we may have a new and easy avenue to finding syphilis in parents; and thus lead to steps of prevention not otherwise approachable.

Some may feel that the functional evidence I offer is not sufficient. I would add a word to refute this.

When in Berlin I presented my temporal lobeless dog to the Berlin Neurological Society some one objected that I had not offered anatomical proof. My chief, Professor Jacobsohn, then arose and said, "The functional evidence is sufficient." So here, the monotony, the harshness, and the low pitch in

¹ See JOURNAL, page 619.

² See JOURNAL, page 616.

³ See JOURNAL, Vol. Clxxiii, No. 10, September 2, 1915.

incurable forms, are conclusive evidence of permanent structural change.

I consider the speech mechanism as the easiest avenue to the earliest symptoms of many a nervous and mental change. But we are not yet quite sensitive enough to catch this message! This paper is one of a series of contributions to this early aspect of mental hygiene, which will aid in diagnosis of vague cases in the interest of prevention. Let me emphasize again that the hope along the line of prevention is that this sign may show up some syphilitic cases that would otherwise remain unknown. It has already done so in the cases mentioned above. Once this voice sign is known and through practice can be easily recognized merely by listening, it then will be a key not only to the case in hand with brothers and sisters but to parental conditions as well.

ACUTE OTITIS MEDIA IN CHILDHOOD; AVOIDABLE MISTAKES IN DIAGNOSIS, PREVENTION, TREATMENT.

DR. BORDEN: I heartily endorse all that Dr. Emerson has said, and I am very pleased to hear the subject presented by somebody other than an aurist. It is a very important subject, more important I believe, than many of us realize. There are several points which I would like to mention which go beyond the range of Dr. Emerson's paper. It is a well known fact that pus under pressure is much more virulent than when it is unconfined. In the event of a middle ear abscess, we have this condition of pus under pressure well illustrated by the elevated temperature. The temperature remains high as long as the tension is maintained. When paracentesis is performed or the pus finds its way back into the mastoid the temperature usually falls. This fact has led me to do some rather radical operating at the Somerville Hospital during the past two years. At this institution, we have come to the conclusion that diseased conditions of the middle ear or mastoid, if very acute, are not infrequently the primary cause of complications in the heart, lungs, joints or kidneys. This theory will doubtless seem to you to be very far fetched, but we are able to prove in some six or eight cases of acute nephritis opening the mastoid cavity was speedily followed by marked relief in the inflamed kidneys. All the cases mentioned had a rather high temperature at the time of operation, but each case showed no harm as the result of the anesthetic or of surgical shock. Several other cases in this institution have been conspicuous examples of the middle ear or mastoid being foci of infection. These were cases of over prolonged convalescence. Two such cases were operated upon by opening the mastoid cavity. The only symptom of an aural nature was a chronic discharge. When the mastoid was opened in one case the entire mastoid cavity was found to be filled with pus and granulations and the lateral sinus was exposed for more than half an inch. In the other case the entire mastoid was sclerotic, but the roof of the middle ear and antrum was wanting, and the dura covered with granulations. In both cases, the general conditions of the two patients improved remarkably immediately after the operation.

Dr. Emerson has mentioned the curved incision in performing paracentesis. In my opinion, there is no necessity for a curved incision. All the talk about such a fancy surgical procedure has kept many physicians from opening distended drums when it was greatly to the patient's advantage to

have the relief from pressure. I realize that this is the rankest kind of heresy from the standpoint of an aurist, but I have seen a great many so called curved incisions become the ordinary pin point opening within twenty-four hours, and I have never seen one remain a curved opening for any length of time. Hence, a straight opening made as large as is consistent with safety will do as well.

The so-called nipple-perforations of the ear drum membrane are important things to recognize inasmuch as they are the conditions which are most liable to cause future deafness. They consist simply of weak areas in the membrane and unless vigorously dealt with, slough out and leave large permanent openings. These are the cases which we see in our offices with deafness dating back to scarlet fever and measles in childhood. Nipple perforations are most common when there is a tremendous discharge from the ear. Occasionally, they occur when there is no discharge present. They may therefore occur at any stage and their presence is always a menace to the future welfare of the hearing apparatus. When a physician is called upon to care for a patient having middle ear disease, either alone by itself or as a complication of another disease, he assumes not only the responsibility of the patient's present illness, but the future of the organ of hearing as well.

DR. J. L. MORSE: Everyone who sees many children will agree heartily with what Dr. Emerson has said. One or two points were suggested to me, however, while he was talking. I think that almost everyone is inclined to be too hopeful as to the immediate results of opening the ears. One is likely to tell the family that the temperature will come down immediately, and that the child will be well in a few days. This is true in many instances, but in more it is not. The temperature remains up, or even goes higher after the ears are opened, and the family and often the physician feel positive that there must be something else the matter. It is a mistake to expect immediate benefit from the opening of the drums in every case. I have also been impressed with the duration of the symptoms in many instances before the appearance of any definite signs in the ears. The child will be sick for several days and in the absence of any symptoms or signs elsewhere it will seem almost certain that the trouble is in the ears. Finally, signs in the ears will develop, to be followed by the relief of symptoms when the ears are treated. In other cases the signs in the ears develop very rapidly, sometimes in the course of a few hours. In other instances they will disappear as rapidly. Everyone who is honest will admit, I think, that it is very difficult to see the drums in many babies under a year old. This is especially true when the drums are inflamed. In many instances it is impossible to know exactly where the drum is to be punctured. It is simply a question of making a cut where the operator thinks it should be made.

DR. EMERSON, in closing: My experience has been such that in speaking of an otitis media, I hesitate to use the word "simple," as pathologically there may be oedema of the brain with only a slight congestion of the drum membrane. I recently saw a child with perforation into the external canal and the ear drum appeared normal.

On inquiring about, I find that most physicians do not examine the ears at all. In the past few days I have asked five surgeons and five physicians, all on the staffs of our large hospitals, as to whether or not they carried with them any means of examin-

ing the ear. The surgeons all answered in the negative, one offering me his head mirror if I wanted it, saying he was quite sure he had one in his office. Of the medical men, three did not carry in their bags any means for examining the ears, the 4th carried an ear speculum because he had had an ear service as an house officer in the hospital, and was especially interested. The 5th had carried an ear speculum for the past year, since having a child very ill with an unrecognized otitis.

STUDIES IN BRONCHIAL GLANDS.

Abstract: Dr. Howell studied the cases coming under his care during the past year to determine the frequency of bronchial adenitis, the reliability of the signs and the possible pathology of the glands. The cases were from the Infants' Hospital, a large school, and private practice, about one thousand in all. The age limit was thirteen years.

It was found that the D'Espine sign varied with age, below the second dorsal in infancy, at the second dorsal at six years, at the first dorsal at twelve years, and often found as low as the third dorsal at all ages. Hence, no case was considered positive if not at or below the third dorsal.

The glands were divided into two groups, those along the trachea and those at the root of the lungs. The tracheal group was enlarged by infection entering carious teeth, adenoids and tonsils. They gave positive D'Espine but no dulness. The glands at the root of the lungs were enlarged from an inflammation out in the lung and gave both positive D'Espine and interscapular dulness, and in this series was usually tuberculous.

DR. SMITH: I was very much interested in Dr. Howell's paper, because for some time I have been working along the same line. It seems to me that an important point has been brought out by everyone, namely, that there are many other chronic conditions that give enlarged bronchial glands besides tuberculosis. The most valuable single sign of enlarged glands to me is dulness at the lung roots, best elicited by percussion between the scapulae. This is more consistently reliable than the D'Espine sign or dilated veins, or change in the character of the voice. I think that the direction of the dulness from the area into the rest of the lung is of some value in differential diagnosis. A tuberculous process involves the apices early and when, together with the dulness at the lung roots there is also dulness in one or the other apices, it is probable one is dealing with a case of tuberculosis, but when the apices are clear one ought to be very cautious about making a diagnosis of tuberculosis.

DR. F. B. TALBOT: Dr. Howell's paper has interested me very much, and I agree entirely with what he says. I would like to add, however, that I have been confused several times by x-ray pictures which apparently show an enlarged thymus, as in one instance in which post-mortem examination proved to be enlarged bronchial glands. My experience, also, has added other diseases than tuberculosis to those which may have enlarged bronchial glands. Among them are whooping-cough, and measles during the acute stage and chronic influenza of the lungs.

DR. BOWDITCH: I am interested in what I understand Dr. Howell calls the normal D'Espine sign, as I have somehow or other arrived at the same conclusion. It has seemed to me to be a spot at the point where the line of the spinous processes of the

vertebrae, and a line between the spinous processes of the scapula cross each other. This is about the third dorsal vertebra. At this spot I have usually found the change described by D'Espine. I was much interested in Dr. Howell's findings, and I agree most heartily with the points which Dr. Howell brought out.

DR. J. L. MORSE: It seems to me that one of the most important things that has come up this evening is the doubt which has been shown as to what D'Espine's sign is. D'Espine's sign, as he originally described it, is the persistence of the bronchial whisper through the seventh cervical spine. Others have claimed that the bronchial whisper is normally present through the second or even the third dorsal spine. I have examined every child that I have seen during the last two years in relation to the presence or absence of D'Espine's sign. A large proportion of these children were seen in private practice. In a great many of these children the change in sound occurred between the seventh cervical and the first dorsal spines. My feeling is, therefore, that D'Espine was right in his original description of the sign. I do not feel sure that it is abnormal to have the bronchial sound persist through the first dorsal spine, but am positive that it is abnormal if it is heard lower than this. D'Espine's sign is very seldom found in good private practice. It is present, however, in a very large proportion of the children belonging to the hospital class, whether they are seen in the out-patient department or in the wards. I am somewhat surprised at the comparative frequency with which some men have found dulness over the vertebrae and in the interscapular space. I have often found what I have called a positive D'Espine sign when I have not been able to demonstrate interscapular dulness or dulness under the spinous processes.

DR. HOWELL, in closing: Dr. Talbot in his remarks brought up the question of whooping cough. I did not include a series of whooping cough in this paper because I thought it would make it too long. I had the opportunity to examine about 30 cases in a private school not long ago, and the results were rather interesting. The exposure was pretty definite and the incubation time about normal. Some of the findings were as follows: No case developed a whoop until there was a positive D'Espine's sign, and there was no ease in that series with interscapular dulness without signs in the lungs; the whooping did not altogether disappear with the disappearance of the D'Espine sign. Two cases with definite exposure, a bad cough, and lymphocytosis never developed a positive D'Espine sign, the symptoms suggesting that the whoop might be connected with thickening of the trachea. I do not mean to imply that all cases with a positive D'Espine's sign with definite signs in the lungs should be called tuberculosis, but I have been surprised to find the number of such cases which prove to be tuberculous. Since then I have looked for this sign in every child examined, and I have come to the conclusion that it is a very important sign in infants under two years. I also do not mean to imply that the D'Espine sign alone is of much value. I think it is caused by slight changes in the glands up and down the trachea, as well as by definite thickening at the hilus. I have seen cases of chronic influenza and chronic bronchitis with positive D'Espine's sign and some of these cases had a positive Von Pirquet besides, but in my opinion it is better to treat these cases as if they were tuberculosis.

ENDOCARDITIS IN CHILDREN; ITS PROPHYLAXIS AND TREATMENT IN AN OUT-PATIENT DEPARTMENT.

DR. TALBOT: Dr. Eustis has presented this paper in a very modest way. He has spent a good deal of time and energy in the work and he has told me privately that his results were a great deal better than the paper shows, and my opinion, after seeing the individuals occasionally, is that he has accomplished a great deal more than his figures show. This preliminary report is to attract attention to the methods of handling endocarditis in an out-patient clinic.

Book Reviews.

The Clinics of John B. Murphy, M.D. At Mercy Hospital, Chicago, February, April, June, 1915. Philadelphia and London: W. B. Saunders Company, 1915.

Each of these three volumes begins with Dr. Murphy's "Clinical Talks on Surgical and General Diagnosis."

In the February volume there is a series of articles upon fractures and dislocations, and a characteristic talk on appendicitis. Dr. Murphy says that pain, nausea, vomiting, elevation of temperature and tenderness in the right lower quadrant appear "early and usually in the order named." He formerly taught that this order was invariable.

In the April number are interesting articles upon carcinoma, hypertrophy of the prostate, arthroplasty of the hip. Dr. William L. Rodman of Philadelphia contributes one of the talks on carcinoma.

In the June number there is another talk on appendicitis, and a number of other chapters upon the following subjects: intestinal obstruction due to a large gall-stone; painful exostosis of the os calcis; chronic tendo-vaginitis of the extensor tendon of the thumb; tumor of testicle; technic of laminectomy; and a talk on unnecessary gastro-enterostomy for ulcer, by William J. Mayo. The illustrations in the June number are even better than the average, and the average has always been high.

The Treatment of Fractures. With Notes upon a Few Common Dislocations. By CHARLES LOCKE SCUDER, M.D. Eighth edition, revised, with 1057 illustrations. Philadelphia and London: W. B. Saunders Company, 1915.

This eighth edition of Dr. Scudder's book is a volume of more than seven hundred pages, and is illustrated with ten hundred and fifty-seven pictures. The book maintains entirely its pre-

vious form and scope. Those who have enjoyed it before will find it still more to their liking.

It seems, however, that the detail of the operative treatment of fractures is not as full as might be desired. This is true, notwithstanding the fact that Dr. Scudder believes "operative treatment is not to be undertaken lightly." There is a disproportionately small amount of space allotted to operative treatment; an examination of Chapter XVI shows that it occupies less than ten pages, more than one-half of this space being given up to illustrations; the actual type under the heading of "The Method of Operating upon the Shafts of the Long Bones" is less than three printed pages.

There is no doubt that at present a great deal of unnecessary and inadequate work is done (and too often by poorly trained surgeons), in the operative treatment of simple or closed fractures; yet in reality this makes it the more desirable that the precise detail of the operative technic should be put down with much elaboration in a text-book of this character, which is so popular as to require either a new edition, a revision or a reprinting practically every single year since it first appeared in 1900. The illustrations are admirable, and the press work equally good.

Diseases of the Digestive Organs. By CHARLES D. AARON, Se.D., M.D. Philadelphia: Lea and Febiger, 1915.

Dr. Aaron discusses in his book of 750 pages the diagnosis and treatment of all pathological conditions of the digestive tract from the mouth to the anus. The book finds ample justification in the rapid strides that have been made in the diagnosis of abnormal conditions, particularly of the stomach and intestines. The author gives in careful detail directions for performing all the usual diagnostic tests and many of the unusual ones. His careful description of these tests is one of the most valuable features of the book. As a matter of course much reference is made to the Roentgen ray and a number of Roentgenograms are reproduced. Many workers will not agree with his implicit faith in the diagnostic accuracy of the Roentgenograph. For example, he states that "Roentgenographically about 40% of gall stones can be diagnosed." The author speaks with enthusiasm also of the use of electricity in the treatment of gastric and intestinal disorders. A certain positiveness of statement such as "all patients suffering from gastroenteroptosis require iron in some form," detracts somewhat from an otherwise sound discussion. He also speaks of the value of bacterial vaccines and phylaeogens in the treatment of appendicitis. On the whole, it is a careful and complete work, accurately compiled, and well indexed and should serve as a valuable book of reference in the diseases of the intestinal organs.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

FEE-SPLITTING.

IT is with no purpose of airing soiled linen in public that we animadvert on certain evil practices that obtain among a small minority of those who practice the healing art. Although the medical profession consists for the most part of high-minded ethical practitioners, there are within its ranks, just as in other professions, men holding to various standards of right and wrong. To a young doctor in the early years of practice, struggling to make a living at the beginning of that long journey to eminence and fame, substantial fees offered by an apparently successful practitioner for attendance on cases of induced abortion, or by an unlicensed midwife or physician for signing birth or death certificates, have been known to appear alluring and as legitimate pot boilers.

Commissions are given to physicians by a consultant for every patient sent to him, or they are given by pharmacists or commercial houses dealing in instruments or surgical supplies—a wide-

spread custom,—or rebates are offered by hospitals and sanatoria to those sending patients. This is called "fee-splitting."

That the practice of fee-splitting is not unknown in this part of the country, although prevalent elsewhere, is attested by the following extract from the report of the Judicial Council of the American Medical Association to the House of Delegates in 1913, after a most careful canvass of the prevalence of fee-splitting throughout the United States by means of impersonal standard circulars with uniform questions, sent broadcast: "In the New England states the practice (fee-splitting) is not prevalent though it exists to a slight degree in them all, being most prevalent in and towards the larger cities of Massachusetts and in that part of Connecticut that is near New York."

When a commercially inclined general practitioner finds that one of his affluent patients—one worth to him several hundred dollars a year—is developing symptoms that call for a surgical operation, the thought enters his head: "If I send my patient to Dr. X he will perform an operation, will receive a large fee, my patient may not need my services again, and if requiring surgical care will go to Dr. X, and not to me; this source of my income will be cut off. Why should not I get a part of the fee for the operation? If it were not for me Dr. X would receive no fee, and he ought to be willing to share. In our town the agent of the brand of automobile I use receives a commission whenever I buy a car, no matter whether the car is purchased of him or directly from the maker; the insurance agent and the real estate man get their commissions in the same way. Why not a commission for the hard working doctor?" If Dr. X is like minded the fee is split, and then other patients follow in the same path.

A form of dishonesty met with too often in the experience of a surgeon to a metropolitan hospital may be classed as fee-splitting. A practitioner tells his patient who needs an operation that he knows Dr. ——, who is on service at —— hospital, and he will see that the patient is entered on this surgeon's service, paying only a nominal sum for board and nursing. That he, the practitioner, will assist at the operation and make visits when it is over. Then he renders a bill, while the surgeon, who donates his services to the hospital, receives no pay. Of course, the practitioner does not assist and his visits do nothing more than pro-

vide moral comfort. In another case a practitioner arranges with his well-to-do patient for a given operation, undertaking to have it done by a competent man, and arranging all financial matters himself in behalf of his patient. He selects a skilful young surgeon, not having too much practice, and tells him he has a poor patient who can pay only a small fee. After the operation he sends in a bill, perhaps for assisting, perhaps for doing the operation. The fee is ample and he keeps most of it himself.

The young surgeon suffers much at the hands of the old and close-fisted surgeon who gets him to assist and considers the privilege enough compensation without a money honorarium.

Why is fee-splitting unethical? In the first place because it is a secret understanding between the practitioner and the surgeon. Would the patient select a given surgeon if he knew of the understanding? Most assuredly not. In the insurance business, on the other hand, it is known by all that a commission is paid to the agent. Everything is above-board. Such fees, when not paid, are sued for in the courts.

Second, the patient does not receive the best possible treatment, because the really competent surgeons will not split fees. They are able to get fees of sufficient size because of their ability and experience. Therefore the patient is taken to a second- or third-class surgeon, who tries to make up for his lack of skill or experience by adding split fees to his income.

Third, fee-splitting leads to that grave stigma on the profession,—unnecessary operations. A patient, let us suppose, has a small benign tumor. Dr. X says, "Why should not I have the fee for removing it rather than Dr. Y. If Dr. Y gets hold of this patient he will operate, so I will get ahead of him." It is a question only of diagnosis and knowledge of operative technic. The medical judgment which determines whether an operation is necessary or, if it is, which selects the time most favorable for performing it,—a quality that the patient has a right to expect of his medical attendant, is entirely lacking.

The patient of the fee-splitter pays more for his operation, for the fee must satisfy two instead of one, besides getting inferior skill. The effect of fee-splitting on the public is most disastrous because it destroys confidence in the profession. The effect of this manner of acquiring money on the medical practitioner is bound to be morally deteriorating.—to the general

practitioner, because he practises deceit and makes money while sacrificing his patient's best interests; and to the surgeon, because, after the technic of a number of operations has been learned and fees can be obtained for performing these operations, stimulus is lacking to progress in the science and art of surgery.

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FOUR IMPORTANT MEDICAL MEETINGS.

DURING the next ten days there will be in session in Boston, Springfield and New York four important medical meetings. The Clinical Congress of Surgeons of North America will hold its sixth annual session in Boston during the week beginning October 25, 1915. The attention of the Boston profession has already been directed to the importance and interest of this congress by editorials in issues of the JOURNAL for September 23 and October 14.

The Fourth Convocation of the American College of Surgeons is announced to take place in Boston on the evening of October 29. The Fellowship Address this year will be given by President Edmund J. James of the University of Illinois, the subject being "The Surgeon's Debt to His Profession." Dr. John Miller Turpin Finney, President of the College, will confer Fellowships upon about four hundred candidates for Fellowship who have been acted upon by the Board of Regents during the past year. The College now lists about 3200 Fellows. On the afternoon of October 29 will occur the annual meeting of the Fellows of the College, the purpose being to elect members of the Board of Governors, and to consider plans for the activity of the College during the coming year. About 1500 Fellows are expected at each of these meetings.

On Friday and Saturday of this week, October 22 and 23, the second New England Tuberculosis Conference is to be held at Springfield, Mass., under the auspices of the National Association for the Study and Prevention of Tuberculosis. A preliminary program of this meeting was printed in the issue of the JOURNAL for September 9. The purposes of this conference are, first, to discuss matters of special interest to the New England States; second, to bring the facilities and aid of the National Association more closely to bear on local problems; and third, to provide a place of meeting and discus-

ion for those who cannot attend the annual meeting of the National Association. An invitation has been extended to all anti-tuberculosis workers coming to this conference to attend also the Massachusetts State Conference of Charities, which is to be held at Pittsfield, Mass., from October 20 to 22 inclusive. At this Conference will be considered the effect upon the family of modern industrialism, the control and care of the mentally defective, correctional institutions, and other similar topics. The complete program of the tuberculosis conference is as follows:—

IRST SESSION: FRIDAY OCTOBER 22, 2.30 P.M.

HOTEL KIMBALL

METHODS OF ANTI-TUBERCULOSIS WORK.

Educational Methods, by Prof. Selskar M. Gunn, Boston, Mass.

Nursing, by Miss Mary Beard, Boston, Mass.

Dispensaries, by Dr. Eugene R. Kelley, State Department of Health, Boston, Mass.

Institutions, by Dr. Harry Lee Barnes, Wallum Lake, R.I.

ECOND SESSION: FRIDAY, OCTOBER 22, 6 P.M.

RED CROSS SEAL SALES METHODS.

A dinner session will be held in the restaurant on the ninth floor of the Forbes & Wallace Department Store, Pynchon Street. Five minute talks will be given on methods of selling Red Cross Seals; the sale by school children, by personal solicitation, etc., and the publicity needed.

Opportunity will be given for general discussion.

HIRD SESSION: FRIDAY, OCTOBER 22, 8.15 P.M.

FIRST CONGREGATIONAL CHURCH, COURT SQUARE.

INDUSTRY AND TUBERCULOSIS.

The medical examination of employees, by Dr. Allan J. McLaughlin, State Commissioner of Health, Boston, Mass.

Employees' relief and aid associations, by Dr. Charles J. Hatfield, Executive Secretary, National Association for the Study and Prevention of Tuberculosis.

Insurance against tuberculosis, by Lee K. Frankel, Ph. D., Metropolitan Life Insurance Company, New York City.

OURTH SESSION: SATURDAY, OCTOBER 23, 9.45 A.M.

WESTFIELD SANATORIUM.

PROGRAMS OF ANTI-TUBERCULOSIS WORK.

For cities of 100,000 or over, by Seymour H. Stone, Boston, Mass.

For cities of less than 100,000, by Miss Mary Van Zile, Beverly, Mass.

For small towns and country communities, by Miss Clarissa O. Johnson, Dover, Me.

IFTH SESSION: SATURDAY, OCTOBER 23, 10.45 A.M.

WESTFIELD SANATORIUM.

HE DIAGNOSIS OF INCIPIENT CASES OF PULMONARY TUBERCULOSIS.

Lecture on "What the general practitioner should know about tuberculosis," by Dr. Vincent F. Boerditch, Boston, Mass.

Clinical demonstration, showing how to detect early tuberculosis, by Dr. Henry D. Chadwick, of the Westfield Sanatorium; Dr. Estes Nichols, Hebron, Me., and others.

The twenty-fifth annual session of the New York and New England Association of Railway Surgeons, celebrating the quarter century anniversary of that organization, is to be held in New York City on Oct. 21 and 22. At the morning session on Oct. 21 there will be presented a series of six papers, after which Dr. W. H. Marey of Buffalo will deliver his presidential address. At the afternoon session on that day there will be a further series of five papers. The second day of the meeting, October 22, will be devoted to clinics given by the New York surgeons at the various hospitals of the city.

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RE-EDUCATION OF DEMENTED PATIENTS IN HOSPITALS FOR THE INSANE.

ANY physician who has had any degree of experience in a hospital for the insane, in fact any physician or layman who has visited such a hospital, is discouraged, distressed, depressed, to an extreme degree, by the many rows and groups of idle, not to say irritable and untidy, demented patients who take up so much of the space in some hospitals for the insane and so much of the time of the attendants and nurses. This situation is both distressing and horrible, not to speak more forcefully. That the problem of occupation and exercise for the insane has been receiving greater and greater consideration in the past few years is quite well recognized. It may be stated, too, that occupation among the insane is a practice which has been followed for quite a time. But it also is a fact that this question has not been given the attention and organization everywhere which it deserves. The idea has not been followed out persistently, scientifically or as thoroughly and generally as it might be done. Most of the occupation employed among the patients in the hospitals for the insane, has, up to the present, been confined to convalescent patients or to non-demented patients. To some extent some of the slightly demented patients, of the better sort, have likewise been given occupation in some of the hospitals. But few real, earnest efforts have been made to see what could be done for the truly demented patients who are indeed a great burden on the nurses, doctors and the hospital as a whole. Most of them have been permitted to spend their time as best they knew how or could under the circumstances, and it is not surprising that as a

consequence we find so many untidy, restless, destructive and quarrelsome individuals in the chronic wards of the hospitals for the insane. Human energy must find its outlet, as a useful or useless, if not harmful, level or path of expression. May it not be that much, if not most, of this untidiness, irritability, restlessness, destructiveness, quarrelsome ness, filthiness, profanity and idleness would disappear from the hospitals for the insane, even among the patients suffering from dementing conditions, if adequate means for occupation and exercise were given to as many patients as possible? Our question is answered in the biennial report of the State Psychopathic Institute at Kankakee, Illinois, issued recently, under date of October, 1914. Under the supervision of Dr. S. N. Clark, physician to the Illinois State Psychopathic Institute, an experiment was carried out to demonstrate that it is perfectly possible by sedulous attention and proper stimulation, to make some of the most demented and untidy inhabitants of the chronic wards fairly respectable individuals and easily cared for. Although the attainment of his object required and received a considerable portion of the time of this physician, the success which crowned his efforts was actually remarkable, so much so that it may be said that this physician has found, as a result of his work, a means of improving the lowest types of demented, as well as a field of great value for the employment of other patients who manifested interest in their work as assistants in the exercises given. So much has been accomplished with the lower type of demented patients that we may rightly expect better results with less mentally dilapidated patients.

The experiment is worthy of a brief recital. A squad of patients who had sunk to the lowest levels in the most chronic wards was chosen. All presented a picture of marked affective deterioration. The methods used in the efforts at re-education consisted in care of the person, simple conversational efforts, listening to music, playing ball, marching to music, dancing, calisthenic exercises, tearing rags for carpet making, such simple household duties as polishing floors, making beds, folding clothing and the like, making reed baskets, plain sewing, and weaving colored paper, as is done so frequently in the kindergarten. The physician was aided in his work by the charge nurse of the ward, and later by some of the more intelligent and reliable

patients. The results that were accomplished were obtained without any extra help. This is certainly noteworthy.

The details can be found in the publication mentioned. The results show clearly and unmistakably that markedly demented patient may be considerably improved in all respects not excepting expression and appearance, if attention and effort be given to personal need and employment. Although these patients cannot now be brought to a level of habits of life which may be seriously compared with the normal, yet the need of such work as here reported being put on a larger scale is surely clearly indicated. It is enough to say that these patients feel better and without doubt are more healthy. From the humanitarian as well as the economic standpoint this work should be carried on more extensively. Much unnecessary work for the attendants will be done away with, the general upkeep of buildings, furniture and, by means least, a hygienic environment thus becomes much more simple, and much less laundry work is a result. The following trenchant statement by Dr. Clark forces home the issue in effective fashion: "Since it is possible with the ordinary facilities present in any hospital to improve the condition of patients of advanced age who have sunk so low in the scale of human activities as had those reported here it seems justifiable to insist that proper attention and surroundings would prevent the occurrence of such degradation." Here is food for thought for all hospitals for the insane. Anything and everything should be done to do away with the disheartening sights still seen in the chronic wards of the hospitals which harbor those mentally sick persons who have been labelled insane. And prevention is greater, better and more effective than cure. It is just the condition of these demented patients which has cast a gloom, quite contagious, over so many workers in the hospitals for the insane. Measures such as are here mentioned will do much to lift the burden.

BETH ISRAEL HOSPITAL.—It is announced that the Beth Israel Hospital Association of Boston has purchased a site of land in Roxbury for the erection of a Jewish hospital to accommodate twenty patients.

N EIGHTEENTH CENTURY BRITISH SURGEON.

In the proceedings of the section of the history of medicine of the Royal Society of Medicine for May 19, 1915 (Vol. viii) appears an interesting monograph sketch by Mr. G. C. Peachey of Dr. William Bromfield, some time a London surgeon and practitioner, a member of the Royal College of Surgeons of England, and British representative of the family whose younger branch migrated early to Boston and left its name and memory in this city. Mr. Peachey's sketch, reviewed editorially in the issue of the *Lancet* for September 4, 1915, presents the character and personality of Bromfield with singular vividness and probable accuracy.

William Bromfield was born in Holborn, London, and was baptized on July 30, 1713. He came of a family of gentry in Southwark, Surrey, one of whom had been created a baronet at the Restoration. William Bromfield's father, one of the younger and poorer members of the family, was a London apothecary and the son of an apothecary.

Of William's early education nothing is known. We find him first apprenticed for the study of surgery to Mr. John Ranby, to whom he later dedicated one of his books. It is reported that he settled early in practice in Holborn and that he was married in 1736. Apparently he had some literary ambitions, for in this year he published an anatomic syllabus in Latin, a work which he subsequently enlarged and re-published in 1743. In 1742 he was appointed to the staff of St. George's Hospital, where he became a colleague of the celebrated John Hunter. This appointment was probably obtained through the influence of his preceptor Ranby, who was surgeon to the Prince and Princess of Wales. It is recorded in the hospital archives that Bromfield suggested the use of copper warming pans to warm surgical dressings in cold weather and that he was the first to heat the operating room.

In 1745 Bromfield was appointed to succeed Ranby as surgeon to the Prince and Princess of Wales, and in 1746 he was made first surgeon of the newly established Lock Hospital in Grosvenor Place. Bromfield's career was now assured, and during the ensuing years he seems to have enjoyed a large and lucrative London practice. He also found time to pursue his literary avocations, and in 1755 a play by him, entitled "The Schemers, or The City Match,"

was performed at the Royal Drury Lane Theatre. In 1760 Bromfield was appointed to the court of assistants of the surgeons' company at London, and in 1769 he became master of the company and was appointed to the Queen's household. He now retired from active practice and became consulting surgeon to the Lock Hospital, where he was succeeded on the active staff by his son Charles. Another son, William Heriot Bromfield, was also a surgeon.

Bromfield served as master of the company of surgeons until 1780, when he resigned and received a vote of thanks "for his long benevolent and highly useful assistance." During his later years Bromfield's reputation was somewhat overshadowed by the growing fame of Percival Pott. It does not appear that he was a man of brilliancy, but rather that he succeeded by a combination of energy, moderate ability and court favor. Mr. Peachey in his article says of him: "He was arrogant and self-assertive; and manually efficient though he was, we have been unable to discover in him the possession of either exceptional intellect or extraordinary intelligence."

"He twice sat for his portrait, appearing on one occasion, old, fat, dyspeptic, and grumpy, and on the other—when Cosway painted him according to that artist's flattering convention—elegant, intelligent, and fairly middle-aged. He preferred Cosway's portrait, and in his will left copies of it, handsomely framed, to three of his colleagues."

Bromfield has been credited with various surgical discoveries with regard to the ligature of vessels for aneurysm, to the reduction of a dislocated shoulder joint, to the use of moulded pasteboard splints and to the invention of two lithotomy instruments; but it does not seem that these claims are justifiable.

Besides his friendship with his tutor Ranby and his colleague Hunter, Bromfield was also on intimate terms with Dr. Thomas Lawrence, Samuel Johnson's physician and friend, of whom we published a sketch in the issue of the JOURNAL for September 23. Bromfield, however, had the misfortune to survive most of his coevals and his two sons, and in spite of the ill health of his later years lived to the considerable age of eighty, dying in 1792. His was a strongly marked and distinguished character of the medical profession of his time and his personality and the history of his associations and life remain vividly human even after the lapse of two centuries.

MEDICAL NOTES.

PREVENTION OF BLINDNESS FROM WOOD ALCOHOL.—Attention of druggists in New York City has been called forcefully to the provision of law prohibiting the use of methyl alcohol (wood alcohol) in any toilet preparation or medicinal preparation used internally or externally, and to the necessity for the proper labelling of all containers of methyl alcohol. The Department of Health is strictly enforcing this section of the sanitary code.

Some time ago an inspector of the Bureau of Foods and Drugs procured a sample of wood alcohol for rubbing from a drug company in Brooklyn. The alcohol was sold in pint bottles with a label stating the contents to be "alcohol." Analysis showing that the sample was methyl alcohol, prosecution was commenced for violation of the sanitary code. The defendant was convicted in the Court of Special Sessions of Brooklyn on June 3, 1915, and was fined \$250. The justices were so impressed by the health menace occasioned by the human use of wood alcohol that they suggested giving the case the widest possible publicity.

At the last annual meeting of the New York State Pharmaceutical Association the question of the wood alcohol label was discussed and resolutions were adopted requesting the members of the Association and druggists in general to make use of the poison label on wood alcohol which the State Pharmaceutical Association would formulate. The president, Arthur S. Wardell, writes, "This year we shall have about thirty-seven hundred copies of the annual report and one of these copies will go to nearly every druggist in the state of New York whether he is a member of the Association or not, and in this way, those who were not present at the convention will be advised of the action that was taken by the convention in reference to the wood alcohol matter." He further states that the legislative committee of the New York State Pharmaceutical Association was instructed, at its annual meeting, to have a bill introduced in the coming session of the legislature, making the use of the advocated wood alcohol label compulsory.

In connection with wood alcohol poisoning, the following news item, clipped from the *New York Evening Mail*, is of interest:

"Up to April 1, from the date of the suppression of the vodka traffic, there have been treated in the Peter and Paul and Obolovskiy hospitals 2,882 victims of methylated spirit drinking. Of these, 27 died.

"In two hospitals for treatment of eye diseases there have been treated 138 patients suffering from partial or total blindness from the same cause. The spirit is obtained by treatment of varnish and eau de cologne. The foregoing is the result of the investigation by a special committee named to report to a military commission."

A NEW DISINFECTANT.—The United States Public Health Service has recently issued the following statement relative to a new and apparently valuable antiseptic:

"As a result of experiments conducted at the hygienic laboratory of the United States Public Health Service it is announced that a new disinfectant, possessing qualities superior to ordinary disinfectants, has recently been discovered. The announcement is particularly important at this time, coming as it does in the face of the shortage in coal tar derivatives which has resulted from the European conflict.

"The new preparation is derived from pine oil, a by-product in the manufacture of turpentine. It is easily prepared by mixing certain proportions of the oil with rosin and sodium hydroxide solution, the finished product being a reddish-brown liquid, rather thick and oily in appearance but free from turbidity. With water it makes a perfectly white emulsion, much resembling milk. It has a pleasing odor, no objectionable taste, and attacks neither fabrics nor metals. It possesses over four times the disinfectant properties of carbolic acid and is altogether nontoxic, so that it may safely be used as a throat spray or mouth wash in solutions of the ordinary strength. The cost of the preparation is remarkably low as it can be manufactured for less than fifty cents a gallon, solely from products which are produced in this country.

"Many of the disinfectants now on the market are neither efficient nor economical, it having been demonstrated that a number of the most expensive and widely advertised are extremely weak in disinfecting power, so much so that their strength is undeterminable by ordinary methods. The sale of compounds of this nature constitutes a fraud. A second class of proprietary preparations are of guaranteed strength, thus putting a legal responsibility upon the manufacturer, but the cost of these per unit of disinfecting power is frequently excessive. The householder is therefore often at a loss to select a disinfectant which is efficient, economical and of constant strength, and it is believed that this new compound, which is to be known as 'Hygienic Laboratory Pine-oil Disinfectant,' will become one of the most useful preparations of that character."

THE INTERSTATE COMMISSION TO FIGHT MOSQUITOES IN 1916.—In order to avoid a repetition of this year's mosquito experience, Commissioner Goldwater proposes the formation of an Interstate Commission to fight mosquitoes in 1916. New York City was not alone in its suffering from mosquitoes during the past summer; the situation was no better in the neighboring States. The residents of the nearby States have a common interest in this matter with those of New York City. Furthermore, no permanent relief from the nuisance can be expected by New York, unless vigorous preventive measures are simultaneously prosecuted in Connecticut, New

Jersey, and Westchester County. For these reasons, the formation of an Interstate Commission is proposed. It will be organized, if Dr. Goldwater's plans are carried out, at the end of this year. The U. S. Public Health Service has been invited to join and has been requested to nominate a chairman to direct the work of the Commission.

PHYSICAL EXAMINATION OF SCHOOL CHILDREN BY PRIVATE PHYSICIANS IN NEW YORK.—The attention of all physicians of the city is called to Section 200 of the Sanitary Code and to the regulations Governing the Physical Examination of School Children of the City of New York.

It is the desire of the Department, so far as possible, to have all school children physically examined by their private physicians, and to have the medical inspectors assigned to duty in the schools examine only those children whose parents are unable to afford the services of a private physician. In this work, the Department counts on the cooperation of the medical profession. The prompt examination of all children who apply to their own physicians for this purpose, with the immediate return of the card, properly filled out, will greatly facilitate the work of the Bureau of Child Hygiene, which has this matter in charge. Physicians are asked to read carefully the section of the Code, the Regulations and the card form upon which the results of the physical examination and the treatment provided must be indicated. Health certificates made out in conformity with such regulations and on the card form provided for that purpose cannot be accepted by the school authorities. A copy of the card form together with the Regulations of the Board of Health with respect to these examinations is being sent to all physicians in the city with this number of the bulletin.

DESERVED CREDIT TO A PIONEER.—Although "good milk" was distributed to the sick poor of New York as far back as 1873 by the New York Jet Kitchen Association and milk pasteurized and modified to a set formula was dispensed to sick babies in the summer of 1891 by the Good Samaritan Dispensary, the credit for most of the effective pioneer work in the establishment of the present system of infants' milk stations belongs to Mr. Nathan Straus, who in 1892 established his pasteurized milk laboratories with depots in various parts of the city. Our readers may be interested to know that during the year ending September 1, 1915, Mr. Straus maintained eighteen milk stations in Manhattan, eight of them open throughout the winter. At these stations there were supplied 2,175,208 bottles of modified and pasteurized milk and 1,441,530 bottles of pasteurized milk. In addition, medical advice was supplied at each station. There is no doubt that this work has been an appreciable factor in the reduction of the infantile death rate in the city.

THE NORTH AMERICAN CHILDREN'S SANITARIUM.—An interesting record of the year's activi-

ties has been published by the North American Children's Sanitarium in Atlantic City. This charitable organization was established in 1910 at Atlantic City for the treatment of surgical cases of tuberculosis by the efforts of the North American. During this time 150 children have been admitted to the hospital of which 114 have been discharged. The report states that it has been the policy of the home to admit children, who, on account of their unhygienic home surroundings, have been unable to successfully combat the disease and to give them the benefit of the maximum amount of sunshine and salt air. In addition, the restoration of function of the diseased part has been attempted by means of rest in bed with extension and fixation by brace and plaster-of-paris cast. To obtain satisfactory results from such treatment it has been found necessary to keep the patients for a much longer period of time than is customary at most seashore sanitaria. The average length of stay at the institution has been 296 days.

The results of this method of treatment have been very gratifying. Of the 150 cases admitted, 108 have improved, 23 have not improved, 1 case ended fatally from tuberculous meningitis, and in 18 cases the results were not recorded.

ROCKEFELLER INSTITUTE FOR THE STUDY OF ANIMAL DISEASES.—It is announced that the buildings of the projected Rockefeller Institute for the study of animal diseases are now under construction on a tract of land near Princeton, N. J., and it is expected that they will be completed within a year. Meantime the director of the institute, Dr. Theobald Smith, and the other members of its staff have begun work in a suite of rooms temporarily lent by the departments of biology and geology of Princeton University.

CLEVELAND MEDICAL LIBRARY.—The will of the late Dr. Dudley P. Allen, formerly professor of surgery in Western Reserve University contains a bequest of \$200,000. as a permanent endowment fund for the Cleveland Medical Library.

PREVALENCE OF MALARIA, MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for October 1, shows that during the month of August there were in Virginia 2015 cases of malaria, 13 of cerebro-spinal meningitis, 76 of pellagra, 14 of poliomyelitis, 11 of small-pox and 785 of typhoid fever. During the same month there were in Massachusetts 25 cases of malaria, 10 of cerebro-spinal meningitis, 4 of pellagra, 27 of poliomyelitis and 235 of typhoid. There were 48 cases of small-pox in Kansas, 47 in Minnesota, 92 in Illinois and 94 in Indiana. There were 242 cases of typhoid fever in Indiana, 176 in Kansas, 96 in Michigan, 109 in Minnesota and 113 in Washington. It is estimated by the United States Public Health Service that the total number of cases of pellagra in the United States is probably between 25,000 and 100,000.

DECLINE OF BRITISH BIRTH AND MARRIAGE RATES.—In the issue of the JOURNAL for Oct 7, we commented editorially on certain aspects of the declining birth-rate in England. The British registrar general has recently issued his return of births and deaths during the second quarter of the current year, presenting further details of this decline and interesting relative statistics of the birth and death rates in different parts of the country.

The 213,094 births registered in England and Wales last quarter were equal to an annual rate of 22.9 per 1,000 of the population, estimated at 37,302,983 persons. This rate is 3.3 per 1,000 below the mean rate in the ten preceding second quarters, and is the lowest rate recorded in the second quarter of any year since civil registration was established. The birth-rates in the several counties last quarter ranged from 16.0 in Sussex, 17.0 in Somerset, 17.1 in Westmorland and 17.3 in Cardigan, to 27.2 in Stafford, 27.3 in Carmarthen, 27.5 in Northumberland, 28.3 in Glamorgan, 28.5 in Monmouth and 30.8 in Durham. The excess of births over deaths last quarter was only 74,515, against 102,293, 105,727 and 101,933 in the second quarters of the three preceding years. The 138,579 deaths registered in England and Wales during the quarter under notice were equal to an annual rate of 14.9 per 1,000, against an average rate of 13.7 per 1,000 in the corresponding quarter of the ten preceding years. The death-rates in the several counties last quarter ranged from 11.2 in Middlesex, 12.0 in Essex and in Rutland, 12.4 in Berkshire, and 12.5 in Buckinghamshire and in Dorset, to 17.2 in Cumberland, 17.3 in Montgomery, 17.7 in Durham, 17.8 in Denbigh, 18.3 in the North Riding of Yorkshire and 18.4 in Cardigan. The 138,579 deaths from all causes last quarter included 311 which were attributed to enteric fever, 6 to smallpox, 6,724 to measles, 590 to scarlet fever, 2,589 to whooping cough, 1,176 to diphtheria and 1,496 to diarrhea and enteritis among children under 2 years of age. The mortality from measles was nearly double the average, and that from diphtheria was slightly above the average; from scarlet fever and whooping cough the mortality was slightly below the average, and that from enteric fever was 40% below. The rate of infant mortality, measured by the proportion of deaths among children under one year of age to registered births, was equal to 97 per 1,000, which was 2 per 1,000 above the mean rate in the ten preceding second quarters."

THE CONTROL OF CANCER IN ENGLAND.—The American Society for the Control of Cancer has recently circulated the following statement taken from the weekly press service of the American Medical Association, and advocates its emphasis in medical journals as an example of methods for the control of cancer. This item refers to the public educational movement for

this purpose in Portsmouth, England, and is based on the annual report for 1914 of the local health officer, Dr. A. M. Fraser, which shows that during 1914, there were only 197 deaths from cancer in Portsmouth, as compared with 230 in 1913.

"When the educational measures were put in force two years ago, the cancer death rate of the city had for a long period been increasing. Twenty years ago the average death rate from cancer in Portsmouth was 6.79 per 10,000 of the population, but in 1913 it had risen to 9.16 per 10,000. In that year the total number of deaths was only 34 less than were caused by tuberculosis. While admitting that the increase in the recorded cancer death rate might have been caused in part by improved methods of diagnosis, the Health Committee of the Portsmouth Town Council nevertheless believed that the present number of deaths was unnecessarily large, and they felt it incumbent to adopt whatever measures might lessen the ravages of the disease. The initiative came from Dr. Charles P. Childe, senior surgeon of the Royal Portsmouth Hospital and a member of the Health Committee of the Town Council. As early as 1906 Dr. Childe in his book 'The Control of the Scourge,' had given to the public the benefit of his extended experience with cancer. At his suggestion the Portsmouth authorities in 1913 began a campaign of public education under the official auspices of the Health Department. The methods adopted included the monthly publication in the local newspapers of articles regarding cancer and the printing and distribution of a Health Department circular on the subject. Arrangements were made for periodical lectures to midwives, nurses, and to those engaged in social work in Portsmouth. The Health Department further made provision for free microscopical examinations and reports on suspected cancerous growths in order to assist physicians in immediate diagnosis in the case of patients who were unable to pay for such laboratory service. The experience of the Portsmouth authorities had been that by far the majority of patients who presented themselves at hospitals suffering from cancer exhibited the disease in a stage too advanced to be cured. It was held that the reason for this delay in seeking advice was not as a rule because patients feared operation, but because they were ignorant that they were suffering from anything serious until they began to suffer pain. The fact that cancer at its onset is almost always painless should be widely realized in order that the public may learn the importance of other symptoms which will enable them to recognize the disease in the early stages, when it can nearly always be successfully removed by competent surgery."

EUROPEAN WAR NOTES.

RETURN OF DR. JACKSON.—Report from Naples by way of Paris states that on October 6, Dr. Thomas W. Jackson, chief inspector of the

American Red Cross Sanitary Commission in Serbia, arrived at that city whence he will soon return to the United States.

CHOLERA IN AUSTRIA AND GERMANY.—During the week ended July 26, 1915, there were in Hungary 434 cases of Asiatic cholera with 240 deaths and in Croatia-Slavonia, 320 cases with 157 deaths. In Germany during the week ended August 14, 1915, there were 172 cases of Asiatic cholera with 28 deaths. The majority of these were among prisoners of war.

AMERICAN HOSPITAL AT MUNICH.—In previous issues of the JOURNAL we have, from time to time, noted the work of the American Hospital at Munich which is being conducted under the auspices of the Bavarian Red Cross with funds subscribed by Americans independent of the American Red Cross. At the withdrawal of the American Red Cross units on October 1st, therefore, this hospital was not obliged to be discontinued but will carry on its work as long as sufficient funds can be raised. It has devoted itself particularly to the ophthalmic surgery of Bavarian soldiers who have received eye injuries.

CONTINUANCE OF HARVARD SURGICAL UNIT.—It is announced that a Harvard Surgical unit is to be maintained in service in Europe during the coming winter. Dr. Edward H. Nichols, who organized the previous Harvard unit, has issued the following notice and call for applications.

"Applications are desired from surgeons, physicians, dentists and nurses who are willing to serve with another Harvard surgical unit in a British hospital. Applications must be for a service of at least six months. Transportation will be paid both ways. The pay will be the regular army rates, with additional allowances.

"Preference will be given to Harvard medical men, and men who recently graduated at hospitals. The unit will sail within three weeks. Applications are to be made to H. H. White, University Press, Cambridge, between 9 A. M. and 5 P. M. daily."

It was originally intended that surgical units from Columbia and Johns Hopkins should continue the work of the Harvard unit; but, as these institutions find it not feasible to carry out their plan, the duty will devolve upon Harvard.

AMERICAN SURGICAL UNITS IN RUSSIA.—Report from Petrograd by way of London states that on Oct. 4 there arrived in that city nine American physicians and thirty-eight nurses, constituting the majority of the personnel of the four American Red Cross units which have been in service in Germany and Austria since Dec. 1. These units, which are in charge of Dr. Cary N. Snoddy of Knoxville, Tenn., are acting under the auspices of the American Red Cross, though their expenses are being paid by the German government. They are to take care of the An-

trian and German civil and military prisoners in Russia. Their headquarters will be established at Moseow, whence their activities will be distributed among the various detention camps throughout the Russian empire.

RETURN OF DR. STRONG.—Report from New York states that on Oct. 4, Dr. Richard P. Strong arrived in that city aboard the steamer *Duca degli Abruzzi*. He is said to have stated that the total number of deaths from typhus fever in Serbia has been about 140,000. Dr. Strong proceeded from New York to Washington to make a report on his work in Serbia to the Rockefeller Foundation. It is announced from Washington, D. C., that on October 7, Dr. Richard P. Strong presented at the American Red Cross and Rockefeller Foundation headquarters in that city his report of the work of the American Red Cross Sanitary commission in the eradication of typhus fever in Serbia.

"Through the combined efforts of many workers and under the general supervision of the International Health Commission, which was formed at Nish, Serbia, of British, French, Russian, Serbian and American sanitary forces, and of which Dr. Strong was elected medical director in active charge, the epidemic rapidly declined and in the last three weeks before Dr. Strong's departure from Serbia not a fresh case of typhus could be found in the country.

"The sanitary demonstrations in the prevention of typhus which have been given the Serbian people and the construction of the various disinfecting plants throughout the country should prevent the occurrence of another epidemic of typhus. Serbia, however, is still in great need of medical men, and if fighting is resumed she will not have a sufficient number of physicians, surgeons and nurses to care properly for her wounded alone.

"The American Red Cross Sanitary Commission, which was sent to Serbia last spring, was financed by the American Red Cross and the Rockefeller Foundation jointly. The entire country of Serbia was divided into fourteen sanitary districts and an organization was perfected whose machinery ran very smoothly and effectively.

"There was a house-to-house hunt for typhus victims, who were promptly removed to special wards in hospitals; disinfection of victims and those with whom they had come in contact, disinfection of clothing, disinfection of houses, all systematically prosecuted. Rigorous quarantine rules were established and occasionally heroic measures had to be resorted to.

"In some cases, the districts were so badly affected that it was necessary to evacuate them en masse and to destroy, by partly tearing down and by fire the majority of the dwellings.

"As typhus is conveyed from man to man by vermin, the bathing and disinfection of large numbers of people and immediate disinfection of their clothing was an important problem. For

this purpose sanitary trains consisting of three converted railroad cars each were fitted up. One car contained a huge boiler, which supplied the steam for disinfection of the clothing. In a second car fifteen shower baths were constructed. A third car was fitted out into a huge autoclave, into which steam could be turned in two atmospheric pressures. In this manner the vermin were immediately destroyed and the clothes thoroughly disinfected."

Dr. Strong has now returned to his duties as professor of tropical medicine at the Harvard Medical School. On Friday of last week, Oct. 15, a special meeting of welcome in his honor was held in the Faculty Room by professors and distinguished guests of the University.

HONORS FOR AMERICAN PHYSICIANS IN SERBIA.—Crown Prince Alexander of Serbia has bestowed decorations on forty-three American physicians and sanitary engineers in appreciation of their services in checking the typhus epidemic in that country.

EUROPEAN WAR FUNDS.—On October 15, the totals of three of the New England relief funds for the European War reached the following amounts:

French Wounded Fund.....	\$17,941.49
Italian Fund.....	8,872.20
Surgical Dressing Fund.....	3,381.00

BOSTON AND NEW ENGLAND.

APPOINTMENT OF A MEDICAL SCHOOL INSPECTOR.—The appointment of Dr. Laura A. C. Hughes as medical inspector of schools in Boston is announced. Dr. Hughes is to have charge of the nurses in the child hygiene division of the health department at a salary of \$1200 a year. She was formerly a school physician under the previous organization of the department and is now the only woman physician who has been appointed a medical inspector in the present department.

AMERICAN ACADEMY OF DENTAL SCIENCE.—A meeting of the American Academy of Dental Science was held in Boston on October 6. The principal address, on military dentistry, was given by Dr. William H. Potter of Boston who has been on service at the American Hospital in Paris.

HOSPITAL BEQUEST.—The will of the late Julia C. Greenwood of Brookline, Mass., which was filed on October 8, in the registry of probate at Dedham, Mass., contains a bequest of \$3000 to the Vineent Memorial Hospital.

BOSTON MILK AND BABY HYGIENE ASSOCIATION.—The report of the director of the Milk and Baby Hygiene Association shows a considerable increase in the number of babies cared for during the past summer with a commendable decrease in number of deaths. The figures are:

Number of babies cared for in the summer of 1913, 2185, in 1914, 2556 and in 1915, 2997.

The number of nurses' visits to the homes of registered babies in 1912 was 10,115; in 1913, 13,644; in 1914, 17, 206; and this year, 16,666. The number of deaths among babies registered with the association was 29 in 1912; 16 in 1913, 15 in 1914, and six in 1915. The increase in the weekly clinics held for well babies has nearly doubled in two years.

PROPHYLACTIC ANTI-TYPHOID INOCULATION AT HARVARD.—It is announced that Dr. Roger I. Lee, professor of Hygiene at Harvard College, has planned to provide optional prophylactic anti-typoid inoculation for all members of the University. This was also done last spring when 175 men were treated and it is hoped that a much larger number will volunteer for the inoculation this fall.

DARTMOUTH MEDICAL ALUMNI ASSOCIATION.—On October 8, a joint meeting of the Dartmouth Medical Association and the New Hampshire Surgical Club was held in Hanover, N. H. The presidential address of the former organization was delivered by Dr. C. H. Carleton of Hanover, and other papers were read by Dr. W. J. Mixer of Boston and Dr. H. L. Smith of Nashua, N. H.

The Dartmouth alumni elected these officers: President, Dr. E. H. Carleton, '97, of Hanover; first vice-president, Dr. E. A. Beaton, '98, of Franklin; second vice-president, Dr. W. A. Bartlett, '11, of Manchester; secretary-treasurer, Dr. H. N. Kingsford of Hanover; executive committee, Dr. C. F. Flanders, '81, of Manchester; Dr. F. P. Lord, '03, of Hanover, and Dr. A. R. Kimpton of Boston.

The New Hampshire Surgical Club elected Dr. W. H. Lyons of Manchester, president; Dr. G. C. Wilkins of Manchester, vice-president, and Dr. C. E. Congdon of Nashua, secretary-treasurer.

QUARANTINE FOR FOOT AND MOUTH DISEASE.—As a result of the rerudescence of the foot and mouth disease in Illinois, which we noted in last week's issue of the JOURNAL, the Massachusetts Bureau of Animal Industry has issued the following orders closing the stockyards at Brighton and Watertown in this state, and declaring an embargo against cattle, other ruminants and swine from Illinois.

"Section 1. The bringing of cattle, sheep, other ruminants and swine into the Commonwealth of Massachusetts from the State of Illinois for any purpose whatever is hereby prohibited, except on written permission of the commissioner of animal industry.

"This order shall not apply to animals in transit from some other State through the State of Illinois, provided the same are intended for immediate slaughter, and consigned to slaughtering establishments under federal inspection, and provided further that the animals are not unloaded in said State from the cars or vehicles in which they were originally shipped.

"Section 2. This order shall be published by sending copies to railroad companies engaged in the transportation of animals to Massachusetts and to persons, firms, or corporations which receive interstate shipments of animals intended for slaughter."

The order closing the stock yards reads as follows:—

"Owing to the receipt this day at the premises of the Brighton Stock Yards Company in Brighton, within the city of Boston, Mass., of an animal suspected of being affected with foot and mouth disease, said premises and all meat cattle, sheep, other ruminants and swine now contained in the barns and yards of said premises are hereby placed in special quarantine until released therefrom by the commissioner of animal industry.

"During the existence of this special quarantine, all persons entering or leaving said premises shall be subject to such regulations as the commissioner of animal industry may deem necessary in order properly to enforce and maintain said special quarantine.

"The Union Market Stock Yards at Water-town are hereby declared closed until further notice."

On Oct. 11 it was reported that a recurrence of the epizootie had been discovered among seven cows in a herd at Leicester, and accordingly the whole of Worcester County was placed under provisional quarantine.

An active protest has been made by cattle owners against the hardship and pecuniary loss to them involved in these regulations.

MEETING OF SOCIAL HYGIENE ORGANIZATIONS.

—In the issue of the JOURNAL for Sept. 30 we published the preliminary program of the meeting of the American Social Hygiene Association in conjunction with the Massachusetts Society for Social Hygiene. This meeting was held in Boston on Oct. 8, and was attended by about 150 members. The afternoon session was devoted to a symposium on the problem of venereal disease and addresses were made by Dr. Donald R. Hooker of Baltimore, Dr. Edward L. Keyes, Jr., of New York; Dr. Allan J. McLaughlin, Massachusetts State Commissioner of Health; Dr. George H. Kirby of New York, Dr. Gardner T. Swarts of Providence and Dr. George W. Goler of Rochester. The evening session was a public meeting, at which there were addresses by Dr. Henry P. Woleott, Dr. Charles W. Eliot and others.

At the business meeting of the American Social Hygiene Association, which occupied the forenoon session, the following officers were elected for the ensuing year:—

Abram W. Harris, president of Northwestern University, president; Dr. Charles W. Eliot, honorary president; active vice-presidents, David Starr Jordan, William T. Foster, Felix M. Warburg, Walter T. Sumner; treasurer, Henry L. Higginson, Boston; secretary, Donald R.

Hooker, M.D., Baltimore; directors, Thomas M. Balliet of New York, Mrs. C. A. Herter of New York, Mrs. Martha P. Falconer of Darlington, Pa.; William A. Greer of New York, Delevare King of Boston, Dr. Lawrence Litchfield of Pittsburgh, James B. Reynolds of New York, and E. R. A. Seligman of New York.

Dr. William F. Snow, the general secretary, presented his annual report, which showed that the membership had grown during the year from 172 to 470, representing 33 states, of which California has 17 members, Connecticut 14, District of Columbia 10, Illinois 27, Maryland 22, Massachusetts 92, New Jersey 23, New York 148, Ohio 17 and Pennsylvania 35, the other states having smaller representations. It is estimated that by the work the organization has done this year it has reached directly about 150,000 individuals.

As counsel for the association James B. Reynolds of New York read a report which dealt exhaustively with the subject of investigation and legislation. He stated that 28 Legislatures had measures before them last year dealing with the question of social diseases. There were about 500 measures which reached the association and were reviewed by it and summarized and returned to the legislative bodies with suggestions. Nearly all the states passed some legislation bearing upon the subjects in which the association is interested.

Obituary.

PROFESSOR PAUL EHRLICH.

DR. PAUL EHRLICH, who died on August 20, at Bad Homburg, Germany, was born of Jewish parentage on March 14, 1854, in Strehlen, a small Silesian town some twenty miles south of Breslau. He received his preliminary schooling at Strehlen and entered the University of Breslau at an early age. His family had produced several scientists of distinction, notably Dr. Karl Weigert, the celebrated pathologist, who was Paul Ehrlich's cousin. Ehrlich himself is said to have been but an indifferent student at the gymnasium and the university, preferring to devote his time to original experimentation rather than to the routine of academic work. He was recognized, however, as a man of unusual talent and finally graduated from Breslau with distinction. Later he obtained the degree of M.D. from the University of Strassburg, and subsequently continued his medical studies at Freiburg and at Leipzig. In 1877 he qualified as a medical practitioner in Breslau, and in 1878 he was appointed chief assistant in Frerich's medical clinic at Berlin, where he remained for seven years.

Ehrlich's genius, however, was for laboratory investigation, not for clinical practice. In 1884 he was made a titular professor by the Prussian government and in 1887 became a docent at the

University of Berlin. In 1888 the impairment of his health, leading to a suspicion of phthisis, compelled him to abandon his work and to travel for a year and a half in Egypt and other countries. Returning to Berlin in 1890 he was given a place in the laboratory of Dr. Robert Koch and received the title of professor extraordinary at the University of Berlin.

Ehrlich now undertook the experimental study of toxins and anti-toxins, in the course of which he began the extensive researches in serology and cellular pathology which first attracted the attention of the scientific world. In 1896 he was made director of the Royal Institute for Serum Research at Steglitz near Berlin. In 1897 he was made a privy councillor by the Prussian government, and in 1899 director of the Royal Institute for experimental therapeutics at Frankfort-on-Main. Here he undertook, with Morgenroth, the study of hemolysis. In 1900 he was selected to deliver the Croonian Lectures at London. In 1902 he followed Jensen of Copenhagen in an investigation of malignant tumors of mice, and for his work on immunity received, in 1903, the gold medal for science from the King of Prussia. In 1904 he published his collected studies in immunity, and was made an honorary professor in that subject at the University of Göttingen. It was in this year also that he visited the United States, lectured in several of our larger cities and received the honorary degree of LL.D. from the University of Chicago.

In 1906 the Institute for Chemical Therapeutics was established at Frankfort by Mrs. George Speyer and Ehrlich was made its director. Here he devoted himself to the science of chemotherapy, of which he must be considered the essential originator, and began his series of researches in sleeping sickness and syphilis, which resolved itself into a study of the synthetic organic compounds of arsenic, and culminated in the discovery of salvarsan and neo-salvarsan. In 1907 he was made chief medical privy councillor of the Prussian government, delivered the Harben lecture in London and received the honorary degree of Sc.D. from the University of Oxford. In 1908 he divided with Metchnikoff the Nobel prize of that year for work in immunity. In 1913 he delivered the oration in pathology before the International Medical Congress in London. In 1914 he was awarded the Cameron prize of the University of Edinburgh and received from Emperor William the second class of the Order of the Red Eagle.

Dr. Ehrlich was a man of incessant and brilliant mental activity, capable of intense concentration, and a prolific author. Between 1877 and 1914 he contributed 212 books and papers to the literature of science. His first important work, on the oxygen requirement of the organism, was published in 1885. In it he recorded his early use of the various aniline dyes and presented the first outline of his famous side-chain theory.

Ehrlich's life has been divided into four periods: the first, from 1877 to 1890, was devoted to chemical studies and to experiments with aniline dyes; the second, from 1890 to 1899, to the study of toxins, anti-toxins, the chemistry of immunity, and to the development of the side-chain theory. The third, from 1899 to 1906, to the study of hemolysins, of malignant disease in rats and mice, and to the completion of the side-chain theory by the theory of amboceptors; and the fourth, from 1906 to 1915, to the study of chemotherapy, especially in the treatment of trypanosomiasis. In its description of his life, in its issue of August 28, the *Lancet* presents in part the following account and analysis of his scientific work:—

"Paul Ehrlich will be remembered for his investigations on the specific action of dyes on living tissues, for the 'side-chain' theory, and for the discovery of salvarsan. Possessed of the truly scientific spirit in the highest degree, his aims were yet consistently practical and utilitarian, and even his speculative and highly involved hypotheses had a practical aspect, and were often used simply as a scaffolding upon which to build further advances in experimental work. It is this aspect of his energies which has served to secure for him a world-wide acknowledgment and recognition during his lifetime such as few scientific men achieve. This practical bias of mind puts Ehrlich in company with Pasteur, Lister, and Koch, whose work he continued and amplified, and perhaps the greatest praise that can be given him is to associate him with them as a worthy compeer. It was in the study of hematology that he first came to the front, and here he was a pioneer. By his careful study of the effects of dyes on various constituents of the blood cells, both red and white, he not only put the study of blood diseases on a scientific basis, but also did perhaps more than any other biologist to elevate the importance of the investigation of cellular reactions and to promote careful research into what has now been raised to the dignity of a special branch of biology under the name of cytology. Here comparatively early in Ehrlich's scientific career we may observe the utilitarian tendency of his work, for the whole structure of modern hematology and all methods for the cytological investigation of exudates, now so valuable in diagnosis, are the direct outcome of his original studies. The use of methylene blue injected *intra vitam* as a means of studying oxidation processes in the body, although a commonplace of the textbooks of physiology, is perhaps less generally known but is none the less a striking original piece of work."

"Another of Ehrlich's practical contributions to the study of immunity, and an important one, was his brilliant work upon the standardization of diphtheria antitoxin. It is always difficult to apply mathematical considerations to complex biological problems, but it was obvious that if antitoxin therapy were to be safe and uni-

rm, this must be done. Ehrlich's solution of question was a masterpiece of exact investigation, and remains the only practical method antitoxin measurement and dosage.

"The discovery which brought Ehrlich's name before the public was the introduction of salvarsan. It was no haphazard discovery, but was based on a long series of investigations proceeding along well-defined lines. A necessary corollary of the side-chain theory was the idea that a living cell, be it a cell of the body itself or of an invading microbe, was susceptible certain chemical combinations, and, therefore, if were to be affected by any drug, that drug must possess certain chemical attributes or no effect would be produced. Hence it follows that definite chemical groups in the drug employed will have definite chemical actions, so that, were our knowledge sufficiently wide, we should be able to predict the action of any drug before it is employed; and although our learning at present falls far short of this extent, yet we can gauge much of the action of an untried chemical substance if its constitution is known. From this basis Ehrlich started on an investigation of a cure for syphilis. He aimed at some substance which should destroy completely all the spirochetae pallidae in the body. He started from the fact that arsenic had been used with success in the treatment of syphilis, and he desired to obtain a substance which, while causing the minimum of harm to the human body, would be a potent agent in destroying the spirochetae. He gave directions to those chemists who assisted him to prepare chemical substances, thus reversing the usual process, where the chemist invents chemical substances which he offers to the physician for trial. Here the physician gave the direction to the chemical investigator. After a large amount of work Ehrlich, at length, evolved salvarsan, or dioxidoaminoarsenobenzol, '606,' as it was called in the convenient phraseology of the laboratory, and the drug was found at once to exert a wonderful influence on syphilis. Experience has confirmed the value of Ehrlich's work. The drug causes a marvelous improvement to occur with extreme rapidity, and though experience has shown that there is no 'sterilisatio magna,' yet the benefit is great and lasting, and this in the vast majority of cases without any harmful effect on the patient. It is true that a number of deaths, in fact many deaths, have followed the use of salvarsan, but in most cases these are explicable by some error in administration or some idiosyncrasy; and it is noteworthy that in several long series of cases there have been no deaths. With the results that have been obtained with salvarsan Ehrlich was not content; he continued his researches, and one result of these is neosalvarsan, which in some respects is an improvement on its predecessor. But Ehrlich, with the spirit of the true philosopher, continued looking for some substance which should be capable of producing

a 'sterilisatio magna,' and the work which he has not lived to accomplish remains to be carried out by others. Although differences of opinion exist as to the ultimate value of salvarsan, there can be no doubt that the medical profession has had put into its hands a weapon of extraordinary power."

The death of Dr. Ehrlich removes one of the most brilliant figures which the scientific world has known during the past half century. Of his personality little is known well except by those who shared in the intimacies of his professional work. He is described as a man intensely preoccupied, absent-minded of all concerns in life other than the problem on which he was engaged. His death, at a time when his intellectual activities were at their highest and when he might have been expected to carry his researches to still higher achievements, is an incalculable loss to science. Dr. Ehrlich is survived by his widow and by two daughters.

Perhaps the most appreciative and illuminating sketch of Ehrlich's character and of the significance of his discoveries is that contributed to the *British Medical Journal* by Dr. C. H. Browning, director of the Bland-Sutton Institute of Pathology in the Middlesex Hospital.

"It is seldom given to one man by his discoveries to revolutionize the outlook on five or six different departments of knowledge and to open up as many unknown paths along which multitudes of others may make rich journeys of discovery. Thus, his investigations on the staining of the leucocytes laid the foundation of modern hematology; his observation that methylene blue possesses an elective affinity for nerve endings has been the starting point of a whole school of highly fruitful neurological research; it was Ehrlich who discovered the acid-fast property of the tubercle bacillus and who devised the method of staining this organism which is practically that now in every-day use, and without which, as Koch himself admitted, the demonstration of the organism would have remained an academic accomplishment instead of becoming one of the most valuable diagnostic procedures in medicine. Similarly, by his work on the standardizing of diphtheria antitoxin Ehrlich placed the dosage of antiserum on a scientific basis, without which von Behring's great discovery would probably have failed in its wonderful achievement. It is well to recall the earlier work of Ehrlich, because it shows the extraordinary versatility of his mind and the remarkably long period during which he continued to produce results of first-class importance; thus the discovery of the acid-fast character of the tubercle bacillus was published when he was 29 years of age, and the 'Oxygen Requirements of the Organism,' which contained the germ of his chemotherapy, when he was 31, and before he had attracted the multitude of workers who latterly sought his laboratories. In his later days, when he was the director of the busy Institute of Experimental

Therapy and the Speyer-Haus at Frankfurt, with their numerous assistants, it was occasionally forgotten what the man achieved by himself. Of course, it was true that individual workers unearthed treasures, whose existence Ehrlich had not suspected, or of whose sterling value he had occasionally to be convinced, but all who were capable of taking an honest and a generous view, knew well that even if Ehrlich did not always foresee the actual nature of the treasure, it was almost invariably he who had discovered the trove.

"The writer worked at Frankfurt during the period (1905-7) which immediately preceded the discovery of salvarsan, and being engaged on the biological investigation of a large series of the arsenical preparations which preceded the famous '606,' it was his great privilege to be intimately associated with Ehrlich in those themes which were then of all-absorbing interest to him. Ehrlich was in those days, even as earlier, an indefatigable worker, and his mind was the sharp sword which ever tended to wear through the scabbard. Had it not been for the solicitous care of his wife there is little doubt that we should have had to regret his loss still earlier. His knowledge of chemistry, especially in its bearings on biology, was immense; at the same time he possessed a power of concentration which appeared almost uncanny, and which in its capacity for eliminating trifles would quite unfit the average man for the ordinary affairs of life. Ehrlich's writings exhibit a singular felicity of expression: he had a genius for the creation of descriptive phrases, such as his famous *Corpora non agunt nisi frata*, and this same quality made personal association with him a never-failing inspiration and stimulation to fresh effort. He was extremely fond of expressing his ideas symbolically, and the diagrams illustrating his theories on immunity are an example of this; these have probably been taken much too literally, and have produced crude conceptions of the nature of the highly complex class of bodies to which toxins and antitoxins belong, which Ehrlich himself never entertained. Latterly the theories of immunity did not actively interest him, although he was at all times ready to uphold the accuracy of the enormous mass of experimental data on which they were based. It is significant that he did not regard cancer investigation with a very sanguine outlook. Were I to attempt to characterize in brief the genius of Ehrlich, I should say that it consisted in two striking characteristics—his faculty for escaping the trammels of error in past work, and his capacity for bringing into association as the basis for experiments ideas which purely critical minds would tend to dismiss as fantastic. Having effected a synthesis, he was then pre-eminently able to grasp the essential elements. Ehrlich's power to evade the pitfalls of old error was clearly seen in his researches, which led to the elucidation of the constitution of atoxyl; a

belief in the accepted view of its composition as an aniline would have effectually prevented all the further developments which culminated in salvarsan. His synthetic faculty is exhibited by the numerous reactions in pure chemistry with which his name is associated, and his keen gift for analysis is exemplified by his fundamental discoveries on the relationship subsisting between chemical constitution and biological action. This is a time at which it is difficult to see clearly, but one feels sure that the perspective lent by the future will bring into still greater prominence the influence of Paul Ehrlich on the advancement of medicine. It is singular that this man, whose practical contributions to medicine have been so numerous, probably never approached any problem in a utilitarian spirit pure sciences frequently stand in need of apologists, and Ehrlich's whole career is a striking vindication of the pursuit of knowledge for its own sake. He who seeks finds, and Ehrlich was an inspired seeker."

Massachusetts Medical Society.

STATED MEETING OF THE COUNCIL.

A stated meeting of the Council was held in John Ware Hall, Boston Medical Library, Wednesday, October 6, 1915, at twelve o'clock, noon. The president, Dr. Charles F. Withington, was in the chair and the following 83 counseilors present:—

COUNSELORS PRESENT.

BARNSTABLE,	HAMPSHIRE,
E. E. Hawes,	J. S. Hitchcock.
C. W. Milliken.	
BRISTOL NORTH,	MIDDLESEX EAST,
Summer Coolidge,	C. J. Allen.
F. A. Hubbard.	E. S. Jack.
BRISTOL SOUTH,	MIDDLESEX NORTH,
E. F. Cody.	C. E. Simpson.
W. A. Dolan.	
H. G. Wilbur.	
ESSEX NORTH,	MIDDLESEX SOUTH,
R. V. Bakelot.	Albert August.
T. R. Healey.	M. H. Bailey.
G. E. Kurth.	H. T. Baldwin.
E. H. Noyes.	F. E. Bateman.
ESSEX SOUTH,	C. H. Cook.
C. H. Bangs.	H. F. Curtis.
R. E. Bicknell.	G. W. Gay.
N. P. Breed.	C. M. Hutchinson.
H. K. Foster.	A. A. Jackson.
P. P. Johnson.	J. B. Lyons.
Butler Metzger.	S. F. McKeen.
J. F. O'Shea.	C. E. Mongan.
FRANKLIN,	E. H. Stevens.
G. P. Twitchell.	J. O. Tilton.
HAMPDEN,	Julia Tolman.
T. S. Bacon.	G. T. Tuttle.
H. W. Van Allen.	Alfred Worcester.

NORFOLK,
 M. V. Pierce.
 J. W. Ball.
 E. H. Brigham.
 A. N. Broughton.
 W. W. Harvey.
 G. W. Kaan.
 Bradford Kent.
 T. J. Murphy.
 A. P. Perry.
 E. P. Starbird.

E. A. Codman.
 G. A. Craigin.
 R. L. DeNormandie.
 C. M. Green.
 W. C. Howe.
 H. T. Hutchins.
 R. W. Lovett.
 J. J. Minot.
 J. L. Morse.
 R. M. Smith.
 D. H. Walker.
 C. F. Withington.

NORFOLK SOUTH,
 C. S. Adams.
 J. C. Fraser.

WORCESTER,
 F. H. Baker.
 W. P. Bowers.
 C. A. Church.
 Homer Gage.
 David Harrower.
 W. L. Johnson.
 G. O. Ward.
 L. F. Woodward.
 S. B. Woodward.

PLYMOUTH,
 Gilman Osgood.
 F. J. Ripley.
 F. G. Wheatley.

WORCESTER NORTH,
 A. P. Mason.

SUFFOLK,
 E. S. Boland.
 G. W. W. Brewster.
 E. M. Buckingham.
 W. L. Burrage.

The records of the last meeting were read and accepted. The president nominated and the Council appointed these delegates: To the annual meeting of the Vermont State Medical Society in Burlington, October 14 and 15, 1915: Dr. John S. Hitchcock, of Northampton; Dr. Francis P. Emerson, of Boston. In the same manner Dr. E. O. Otis and Dr. W. H. Robey, Jr., were appointed a committee to audit the treasurer's accounts.

The Committee on Membership and Finance presented this report through Dr. Green, and it was accepted and its recommendations adopted by vote:

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE.

THE COMMITTEE ON MEMBERSHIP AND FINANCE makes the following recommendations as to membership:

1. That the following named Fellows be allowed to retire, under the provisions of Chapter I, Section 5, of the by-laws:

John Standish Foster Bush, of Winchendon.
 William Barker Hills, of Brookline.

2. That the following named Fellows be allowed to resign, under the provisions of Chapter I, Section 7, of the by-laws:

William Henry Beardsley, of Springfield.
 John Paine Torrey, formerly of Andover, now of Norman, Oklahoma, (to take effect January 1, 1916).
 Earl Morey Vrooman, of North Adams.

3. That the following named Fellows be deprived of the privileges of Fellowship for non-payment of dues, under the provisions of Chapter I, Section 8, of the by-laws:

William Wallace Broga, of Springfield.
 Thomas Joseph Cahill, of Cambridge.
 Thomas Greene Clarke, of Langley, Washington.
 Daniel Hiram Craig, of unknown address.
 Herbert Clair Deans, of Roxbury.
 Francis William Donahue, of Greenfield.
 Edward Hugh Ferguson, of Wrentham.
 Charles Lawrence Furealow, of Springfield.
 Edward Richard Gookin, of Dorchester.
 Gottfried Leonhard Hagen-Bürger, of Havana, Cuba.

Hampar Paul Kazanjian, of Lawrence.
 Isaac Klein, of Boston.
 Wilfrid Teller La Fortune, of Fitchburg.
 Samuel Sanford Orr, of Weston.
 Sumpat Kevork Pachamian, formerly of Lowell, present address unknown.

Charles John Petree, of Shirley Village.
 George Merrill Randall, of Lowell.
 Frederick Rodney Saiborn, of New York.
 Joseph Shohan, of Roxbury.
 Henry Marr Stoddley, of Somerville.
 Wellington Andrew Thompson, of Manchester, N. H.
 Frank Elmer Tilden, of North Easton.
 Raymond Sargent Wilder, of New York.

For the Committee on Membership and Finance,
CHARLES M. GREEN, Chairman.

A petition of J. J. Sullivan, of Lawrence, for restoration to the privileges of fellowship was referred to this committee; W. H. Merrill, J. A. Dorgan, F. A. Conlon.

A similar petition from O. M. Deems, of Springfield, was referred to J. M. Birnie, E. L. Davis, T. S. Bacon.

On motion by W. C. Howe it was,

Voted: That because of the disturbed state of Mexico Dr. A. W. Parsons, of Tampico, did not receive the notice that the Council had voted February 3, 1915, to restore him to the privileges of fellowship provided he paid past and current dues within two months of the date of the Council meeting, and because he now expresses a desire to be restored under the same conditions it is voted that the time during which he may pay up be extended to December 31, 1915.

Voted: That Dr. A. J. Stevens, of Malden, a retired Fellow, be restored to active fellowship upon his own request, under the terms of Chapter I, Section 5, of the by-laws.

The reports of the committees appointed to consider the petitions of the following for restoration to the privileges of fellowship, namely that they be restored provided they pay past and present indebtedness within one month, were accepted: A. V. Lyon, F. H. Lally, Ada H. Tedford, S. H. Rubin.

Dr. Charles M. Green, Chairman of the Committee on Membership and Finance, introduced this amendment to the by-laws and moved its adoption:

Chapter VII, Section 3, that the word "June" in the last line of the fourth paragraph be changed to "March"; so that the clause shall read: "This dividend shall be apportioned among the district societies according to the number of annual assessments which shall have been paid to the district treasurers previous to March first."

It was discussed by the following councilors: C. M. Green, E. M. Buckingham, G. O. Ward, W. H. VanAllen, A. Worcester, S. B. Woodward, C. W. Milliken and G. W. Kaan. The last named offered an amendment to Dr. Green's motion to the effect that it be indefinitely postponed. On being put to a vote, Dr. Kaan's amendment was lost and the original motion was passed. The appended report of the delegation to the House

of Delegates of the American Medical Association, last June, was read by the secretary in the absence of Dr. Hugh Cabot:

**REPORT OF THE MASSACHUSETTS DELEGATION TO THE
HOUSE OF DELEGATES OF THE AMERICAN MEDICAL
ASSOCIATION, JUNE, 1915.**

Gentlemen:

The most striking feature of the report of the Trustees was the evidence submitted of the profound effect the propaganda against patent medicines was having on the proprietors of these remedies. A formidable list of law suits filed against the Association was presented, but interestingly enough none of them have come to trial and some have already been dropped from the docket. In short, the Association has successfully called these bluffs.

The Judicial Council made a most exhaustive report of the development of Workmen's Compensation laws in this country and abroad, which may be regarded as the most valuable survey of this development hitherto compiled and will prove a most satisfactory document for reference.

This Council also showed its courage by recommending that a certain Fellow against whom charges of advertising had been proved, be dropped from the rolls. This advice was adopted and may be regarded as a good beginning in the enforcement of discipline by this powerful body.

The recommendations of the Council that the Secretary of the American Medical Association prefer charges against any Fellow when overt acts on the part of such Fellow, supported by reasonable proof, were brought to the attention of the Secretary. This will provide a method of preferring charges which will not involve the necessity of having charges brought by another Fellow who might often be unwilling to do so.

The report of the Council of Medical Education showed that it has continued its most remarkable work in aiding the consolidation of medical colleges and raising their standards. It has made a study of hospitals, both from the point of view of clinical teaching and as concerns their availability in providing internships for medical graduates. From this study as a basis we may expect to see this Council use its great influence toward making a hospital year a requirement for practice.

The Council on Health and Public Instruction, acting with the American Bar Association and the American Institute of Criminal Law and Criminology, has prepared a bill for submission to state legislatures regulating expert testimony in criminal cases involving questions of insanity. The bill was made to cover only this small portion of the question of expert testimony in order not to make the experiment too radical and to increase the chance of its adoption and trial. This we believe to be the beginning of a valuable reform.

The general impression left upon one's mind by this year's Session of the House of Delegates was that the Councils have proven a most valuable means of doing an enormous amount of important work and that the House had learned to rely upon them.

It is with pleasure that we record that in spite of the great distance and the amount of time involved in attending the meeting, four out of the five delegates from the Society were in constant attendance.

Respectfully submitted,
HUGH CABOT.

Voted: To accept the report.

Dr. C. J. Allen presented the minority report and Dr. G. W. Gay the majority report of the committee appointed last June to consider the advisability of employing legal counsel in medical matters before the Legislature. After dis-

cussion, participated in by Dr. Allen, Dr. Gay, Dr. Thompson and Dr. Cook, the majority report was accepted by vote.

MAJORITY REPORT.

EMPLOYMENT OF LEGAL COUNSEL.

Gentlemen:

At the last meeting of the Council on June 8, 1915, a special committee was appointed by the president for the following purpose: "To investigate the advisability of employing legal aid in safeguarding the interests of the Society in matters that may come before the Massachusetts Legislature. They shall ascertain the approximate cost of such aid and report with recommendations to the next meeting of the Council."

This committee held a meeting on June 28th, and after a free and harmonious discussion, it was agreed that a majority and minority report should be presented to the Council. The majority report is hereby offered for your consideration.

In the remarks of the chairman of this committee made on presenting the subject to the Council, several reasons were given therefor among which were the following:

First. A report that the National Association of Retail Druggists proposed to make an effort to secure legislation prohibiting the dispensing of medicines by the physicians, except they be legalized druggists. In other words, our patients were to receive no medicines except at the hands of the apothecaries.

A moment's consideration would seem sufficient to convince anyone of the futility of seeking such legislation before a Massachusetts legislature. The most obtuse legislator would at once see not only the absurdity of such a law, but also the impossibility of enforcing it were it placed upon the statute books. This proposition does not seem of sufficient importance to justify any extra expense to the Society.

Second. It was also stated that this Association will seek measures to prohibit the manufacture of all "galenical preparations," by the large manufacturers, and to destroy the trade in nostrums.

The natural inference to be drawn from the instructions submitted to this committee is that the work of the Standing Committee on State and National Legislation of this society is not satisfactory to a portion of its Fellows. A brief examination of the annual reports of that committee for the past ten years, which are in the hands of every member, would seem sufficient to convince reasonable persons that the committee's efforts had been very efficient. Composed of the president and four other Fellows, it has the valuable assistance of an advisory committee of one or more physicians in each of the forty Senatorial Districts of the state. Efforts are made to get in touch with members of the legislature through their family physician and in every other proper way for the purpose of informing them of our objects, the reasons therefor, and of the benefits to the public that we seek to obtain. Furthermore, they are given to understand that the Massachusetts Medical Society has no axes to grind, that it asks nothing of the legislature for itself, but that its sole object is in the welfare of the Commonwealth.

Many years ago, certain members of this Society, who were interested in legislative matters, were told by the public health committee in the Legislature, that it was not necessary to employ counsel for the presentation of medical bills to that committee, as the committee had sufficient confidence in the medical profession to justify their belief that it would not present or advocate unworthy, or improper measures before legislative committees.

For many years the policy of the Committee on State and National Legislation had been founded upon that advice. The committee has the authority to employ counsel upon all proper occasions, and it has availed

self of this privilege in numerous instances. The results of this policy are matters of record and are in the hands of the members of the Society.

The estimated cost of employing counsel, as specified in the vote in hand, has received due consideration. Several first-class attorneys have been consulted upon that point. The estimates have varied from \$500 to \$1500 annually. One thousand dollars would probably be sufficient to secure satisfactory service annually.

The undersigned fail to see any advantage to be gained by employing further legal aid in legislative work than is already the custom upon the necessary occasions. We do not believe that the legislative work in the interests of this Society, nor that the professional work in the interests of the public can be done as well by lawyers as by physicians. From an intimate knowledge of the work and achievements of our Committee on State and National Legislation extending over many years, we believe that the above interests are safer in the hands of this committee and will be managed more successfully by it than can be reasonably expected of any legal body and at much less expense.

For these and other reasons that need not be specified upon this occasion, we recommend that no counsel be engaged or employed to look after legislative matters pertaining to this Society, other than is now the custom of the committee to whose hands they are committed.

Respectfully submitted,

GEORGE W. GAY.

CHARLES M. GREEN.

MINORITY REPORT.

EMPLOYMENT OF LEGAL COUNSEL.

gentlemen:

I regret very much that I am compelled to differ from my colleagues, but believing as I do, that the time has come when the interests of the Massachusetts Medical Society demand the aid of competent legislative counsel, the only course open for me to pursue, is to submit this minority report.

Every year, our profession is made the target of various kinds of attack by various kinds of people; and if we can believe the statements of our friends and enemy, the coming legislative year will witness a series of attacks more vicious than any that have preceded them.

In addition to the usual attempt to break down our vaccination laws and weaken our medical registration, it is planned to introduce a bill, the object of which is to prevent physicians from doing any dispensing. Back of this bill will be the best organized body of men in this country, possessed of unlimited money with which to hire the shrewdest legal talent obtainable.

I believe that we should place at the disposal of our able legislative committee the services of a lawyer, familiar with the wiles of unscrupulous lawmakers, one who is able to meet them at every turn and beat them every game.

I do not believe that it will be necessary or wise or him to make himself prominent at legislative hearings. His work would rather consist in mapping out plans, preparing cases, deciding on available evidence, etc. It is a familiar saying that a case well-prepared half won.

Such aid can be secured next year for \$1000. This can be obtained in three ways: First, let each man who eats it pay for his annual dinner; Second, the money that is now returned to the District Societies as rebates; Third, let every man pay for his own journal.

I therefore recommend that \$1000 be appropriated to secure legal counsel, the same to be expended by and at the discretion of, our Committee on State and National Legislation.

Respectfully submitted.

CLARENCE J. ALLEN.

The president referred to the death of Dr. James Edwin Cleaves of Medford, which occurred June 20, 1915, shortly after the Council meeting, which he attended. Dr. Cleaves was sixty-one years old and had been a counselor for many years.

Dr. C. M. Green offered the following motion for the Committee on Membership and Finance, and it was so voted: That the Librarian be instructed, until otherwise ordered, to furnish the business manager of the BOSTON MEDICAL AND SURGICAL JOURNAL by December first of each year, with the number of members of the Society entitled to receive the JOURNAL on March first of that year, and that that number be considered the minimum number of JOURNALS to be paid for by the Society in each respective year.

He stated that the chairman of the Committee on Membership and Finance was instructed to inform the Council that the committee is prepared to recommend the necessary appropriation to continue the affiliation with the BOSTON MEDICAL AND SURGICAL JOURNAL.

Dr. G. W. Gay read a report on Malpractice Defence for the seven years the act had been in operation:

THE FIRST SEVEN YEARS OF MALPRACTICE DEFENCE. Report Prepared by the Secretary.

As you know, the Malpractice Act of the Massachusetts Medical Society went into effect following the annual meeting of the Society in June, 1908. By the terms of the act any active Fellow whose dues are paid up has the privileges of defence in a suit for damages for malpractice provided the claim is for services rendered subsequent to the adoption of the act, and provided the suit is entrusted solely to the Society to defend. No damages are paid, should the suit go against the Fellow, and a suit may be settled by the defendant only on the consent of the Society.

During the seven years in which the act has been operative, the secretary has discussed malpractice defence and furnished application blanks to about 18 or 20 Fellows a year, say 130 altogether. Of these 19 have been placed in the hands of the attorney of the Society with the following disposal:

	CASES
Verdict for the defendant.....	5
Settled	5
Suit withdrawn.....	3
No suit brought.....	1
Insurance Co., forced by atty. to defend suit..	1
Pending	4
	Total 19
During this time the Society has expended	
for defence.....	\$2885.25
Average cost per year.....	412.00
(11+ cents per capita annually.)	

As will be seen, no case has been lost thus far. Although defence is provided only for suits brought, in practice many suits are prevented and others are dropped when the plaintiff learns that the Society stands behind its Fellows.

Under the terms of our act the president and secretary handle the malpractice defence. Application is made, usually by telephone, to the secretary, who makes a rough memorandum of the facts in the case for the malpractice files and sends the applicant a printed blank and a copy of the malpractice act. When the pa-

Miscellany.**CONTINUED RISE IN COST OF DRUGS.**

pers have been properly filled out and are returned with a written account of the case and a receipted bill for society dues, the president and secretary consider the circumstances, and accept the case if everything seems to be in proper form. The applicant is told that he may tell the plaintiff's attorney that the case has been placed in the hands of the Society. In the event of threatened suits this has the effect, in a majority of instances, of stopping the proceedings, and nothing further is heard of the threat, and this is the result in most of the suits that have been already entered, as is shown by the fact that but *nineteen* suits have been actually placed in the hands of our attorney out of about *one hundred and thirty* (1 in 6+) considered. Grateful letters have been received from several Fellows who have been defended, and many who have been only threatened have expressed themselves as relieved of much worry of mind and apprehension.

If a suit is sent to our attorney the president and secretary select experts and the Society pays the necessary expense of its experts, but no fees. The entire subject of malpractice defence was reviewed by a special committee of the Society, that reported to the Council, February 4, 1914, with recommendations. (See Bulletin No. 1, July 1, 1914, Pages 27-30.)

Dr. C. M. Green Moved: That in cases wherein verdicts or settlements in favor of the defendant are secured, the defendant shall reimburse the Society to the extent of one-half the legal expenses incurred by it. The chair explained that there had been a recent case in which a Fellow was grateful for successful defence and at the suggestion of the president had paid half the cost of defence. On being put to a vote the motion was defeated.

Dr. W. P. Bowers called attention to a conflict between the dates of the meetings of the Massachusetts Medical Society and the American Medical Association next June. He moved and it was *Voted*: That the next annual meeting of the Massachusetts Medical Society shall be held in Boston, June 6 and 7, 1916.

He introduced the following amendment to Chapter II, Section 1, of the by-laws, and after being duly seconded it was adopted by a unanimous vote:

Section 1 of Chapter II shall be amended by transposing the words "unless otherwise ordered by the Council," in the second and third lines of the said Section, and by omitting all of the text after the word "June" in the fourth line, so that the Section as amended, will read as follows:—

The annual meetings of the Society, shall be held, unless otherwise ordered by the Council, in Boston, on the second Wednesday in June.

Dr. A. N. Broughton reported on his attendance, by the president's request, at the hearing given by the Industrial Accident Board in June, 1915, and suggested that the committee of the Society on the Workmen's Compensation Act should take some action to counteract a spirit manifested by the Board that is hostile to the interests of the profession. No action taken.

Adjourned at 1:30 p.m.

WALTER L. BURRAGE,
Secretary.

In previous issues of the JOURNAL we have noted from time to time a continuous rise in the cost of various drugs owing to circumstances attendant upon the European War. Report from New York on September 24 states that this general increase of price has continued, affecting particularly quinine, opium, and the various botanical drugs.

"A fresh advance of 4 cents per ounce is announced by all domestic manufacturers of quinine, bringing prices to a minimum of 40 cents per ounce for quinine sulphate in 100-ounce tins. This represents the highest price, with but one exception, reached by quinine since 1889, a period of twenty-six years. The demand for quinine from the European belligerents has been unabated since the war started, cable inquiries for quantities ranging from 25,000 to 50,000 ounces having been received here periodically since the first of January. The continued strengthening of the market for quinine to a point where prices are today, 14 cents per ounce higher than at the beginning of the European War, has been based partly on the strong statistical position of the article, but is traceable more generally to a gradual elimination of all competition from German and English makers. The latter interests have been hard pressed to supply their own abnormal requirements, with the result that they have been forced into this market.

"Cinchona bark, from which the active principle of quinine is extracted, had been arriving here in normal volume up to the beginning of 1915. Imports for twelve months ended June 30 last totalled 3,944,549 pounds, valued at \$561,106, against 3,648,868, worth \$464,412, in 1914 and 3,553,239, valued at \$357,490, in 1913. Shipments of this bark from Java to Europe have recorded a marked slump within the past eight months, however, total shipments to Europe from January to August having been 6,523,760 Amsterdam pounds, against 10,318,000 Amsterdam pounds for the same time in 1914. A pronounced falling off in the imports of quinine sulphate from Germany, which country had been the mainstay of European consumption, has also been shown, and imports of English-made sulphate have also been negligible. Total imports of foreign sulphate in the year ended June 30 last were 1,829,732 ounces, of the value of \$452,348, against 2,879,466 ounces, valued at \$624,125, in 1914, and 3,185,984 ounces valued at \$562,924, in 1913. Since Jan. 1, 1915 the imports of foreign sulphate into the United States have been relatively unimportant.

"The above statistics are particularly illuminating, inasmuch as they indicate that, while arrivals of cinchona bark have been within reasonable range of those of preceding years, the de-

cine in imports of the sulphate and the exports of foreign sulphate in twelve months ended June last of 59,467 ounces, against only 172 ounces in the preceding year, have emphasized the fact that a much greater reliance has been placed upon manufacturers in this country. The latter interests now practically have the field to themselves. Whether they will be able to take definite advantage of the reduction in foreign production incidental to the war is doubtful, in view of the agreement existing between Java bark growers and European salts makers. The fundamental basis of this compact was the establishment of a minimum of 6.20 Dutch cents per sulphate unit on sales of manufacturing bark. In view of the above understanding there seems little likelihood that American manufacturers will be permitted to benefit at the expense of their European competitors once normal conditions are restored.

"Unabated buying by various European countries, particularly Russia, of all kinds of narcotics, anesthetics, anodynes, analgesics and disinfectant drugs has been seen in the wholesale drug and chemical market within the past fortnight. This has more than made up for the curtailed demand from domestic consumers, who have generally restricted purchases to small jobbing lots in view of the existing shortage which has kept values at practically prohibitive levels.

"Yesterday further advances were announced in the prices for gum opium to a minimum basis of \$8.25 per pound, for powdered to \$9.25 per pound, and for granular to \$9.50 per pound. The increase is based on the heavy export demand for such opium derivatives as morphine and codeine, as well as upon the poor outlook for 1915 crop in Turkish possessions and the great difficulties encountered in making shipments from the bombarded port of Constantinople to any other destination than Germany. Latest estimates of the Turkish opium crop indicate that not more than 3000 to 3500 cases will be produced. Another important feature in the opium situation is the recent advices from Greece indicating that practically the whole Macedonian crop of opium will this year be shipped to Great Britain, which will cut off the United States. Stocks of opium in bonded warehouses in New York on Aug. 1 last stood at 10,777 pounds against 68,652 pounds on July 1, indicating that over 17,800 pounds had been taken out of this market, presumably for export.

"A great scarcity of bismuth metal, as well as all bismuth preparations has lately developed in the domestic markets owing to a sharp curtailment of the production of bismuth metal in Mexico and a heavy curtailment of imports from other importation points. Domestic manufacturers of bismuth preparations have not been offering other than small amounts for the last three weeks. They are still quoting \$2.65 or \$3.00 per pound for metallic bismuth, but sales have been consummated all the way from

\$5 to \$6 per pound by second hands. The export demand for all varieties of bismuth has been enormous and is still very heavy. It is stated that stocks are still too limited to enable them to supply ordinary trade requirements.

"One of the recent developments carrying more than usual interest was the advance in price of acetate of lime from a basis of \$3.50 and \$3.55 per hundredweight, to a basis of \$4 and \$4.05 per hundredweight. This was brought about by the unusually heavy demand for its by-products, acetone and acetic acid. It is said that there are less than 100 tons of domestic acetone not contracted for today. One recent heavy export order for several thousand tons was flatly refused owing to the dearth of stocks. The demand for acetone from munitions manufacturers has been particularly heavy, while the demand for acetic acid has been large because of the increased operations of domestic as well as English manufacturers of dyestuffs. The shipments of acetate of lime have been pared to the quick in order to permit of the increased export business in acetic acid and acetone. Thus for twelve months ended June 30 last the exports of acetate of lime amounted to but 24,673,247 pounds against 68,160,224 pounds in the corresponding period last year and 80,579,838 pounds in the same time in 1913.

"Such changes as have appeared here among the botanical drugs have again been upward, but movements in the botanical drugs have possessed little more than nominal significance as stocks have become so limited that purchases have been restricted to small jobbing quantities. Kola nuts, sassafras bark, soap bark, juniper berries, vanilla beans, cannabis indica, sage and thyme leaves, gentian and rhafany roots, caraway, coriander, mustard, poppy, anise and celery seed, marjoram and savory leaves, belladonna,aconite, burdock alkanet, German dandelion roots, sloe berries, horehound leaves and quince seeds have all been marked up owing to increasing scarcity. The general situation in botanical drugs offers no hope for replenishment of standard products so long as the war continues. Italian participation in the war prevented the promised outlet for some of the German and Austrian products. Botanicals of Spanish and Italian origin have appeared here, but these have been lacking in quality and have not appealed to the general consuming trade. The question of substitution has come in for a deal of attention. In the case of belladonna leaves, which enter into a distinctive field of consumption, substitution is out of the question, and for the small lots obtainable here \$1.75 and \$2 per pound is asked, comparing with a price of 50¢ per pound about a year ago."

Further report from New York on October 6 notes the continuance of the phenomenal rise in the cost of quinine and other drugs.

"The sensational advance in quinine to 90 cents and \$1 an ounce marks the highest price within the memory of many members of the

New York wholesale drug trade. Practically all domestic manufacturers of quinine have withdrawn all future offerings, and many of them may be forced to cancel outstanding contracts in view of a shortage of the basic material—cinchona bark. Early this year manufacturers were accepting business in quinine on the basis of 26 cents an ounce. Prices were gradually advanced until a 40-cent an ounce basis was established a few weeks ago.

With the withdrawal of practically all makers from the market, the speculation among second hands has become intense. Coupled with this are the continued export inquiries for the article, these amounting in many instances to 25,000 and 30,000 ounce lots. The sharp advance in quinine to 90 cents and \$1 an ounce discouraged the exporters, however, who state that the London party, where best Continental brands of quinine are obtainable at two shillings one penny an ounce, is lower than the American. Some specialists, who have long been interested in the exportation of the article, state that only in one previous instance has the present value of quinine been exceeded and that twenty years ago when speculators succeeded in inflating the quotation to \$6 an ounce. So far as the makers are concerned, the highest price ever exacted by them was in 1886 when the market was on a 73-cent an ounce basis.

The present extraordinary situation in quinine, which is one of the most important drugs in general usage today, grows out of the reported inability of domestic makers to procure anything like sufficient quantities of cinchona bark out of Amsterdam to supply them with crude material. It is said that London and the continental makers of quinine have succeeded in cornering the cinchona bark market. In connection with this situation it is of interest to note a drop in imports of cinchona bark for the year ended Aug. 1, 1915, to 3,388,920 pounds, which compares with 4,009,635 pounds in 1914 and 3,314,359 pounds in 1913. The imports of foreign sulphate of quinine during the period mentioned fell off to 1,862,056 ounces against 2,717,160 ounces in the corresponding period in 1914, and 3,177,873 ounces in 1913.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING OCTOBER 9, 1915.

No contributions for the week ending October 9, 1915.

Previously reported receipts \$7,866.84
Total disbursements 7,310.04

Balance \$ 556.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.
Pittsburgh, Pa.

CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, November 11, 1915, at 2 P.M.

Candidates, who must be residents of the Suffolk District or non-residents of Massachusetts, should make personal application to the Secretary and present their medical diplomas at least three days before the examination, between the hours of 4 and 5 P.M.

DAVID CHEEVER,
355 Marlboro St., Boston. Secretary.

APPOINTMENTS.

Dr. Harold K. Faber of the Rockefeller Institute for Medical Research, has been appointed assistant professor of pediatrics at Stanford University Medical School.

Dr. Frank A. Hartman has been appointed lecturer in physiology at the University of Toronto.

RECENT DEATHS.

DR. CHARLES R. CROSS, JR., of Brookline, Mass., died on October 8 in a military hospital at Dinard, France, in consequence of a fractured spine received on October 6 in an automobile accident. Dr. Cross, who had been on service during the summer with the Serbian Red Cross, had recently come to Paris and engaged in relief work at Dinard.

DR. FRED L. HIGGINS, who died recently in East Boston of heart disease, was born at Hanover, Mass., in 1865. He had practiced dentistry in Rockland, Mass., and in East Boston.

DR. HOMER G. NEWTON, who died recently at Shrubsole, N. Y., was born there in 1835. He graduated from Yale in 1859, and served throughout the Civil War as an army surgeon. Subsequently he settled in Brooklyn, N. Y., where he became known as a leading ophthalmologist, and was one of the founders of the Brooklyn Eye and Ear Hospital.

DR. ALTON E. OLIVER, formerly of Braintree, Mass., died on June 7, 1915, at Hankow, China. He was born at Braintree on September 2, 1883, and graduated from the Tufts Dental School in 1906. Immediately thereafter he went to China on the Red Cross service, and since the close of the Chinese revolution, has been practicing his profession in Hankow.

DR. SAMUEL CHASE THAYER, who died of pneumonia on October 11, at Boston, was born in Waterville, Me., on January 15, 1861. He received the degree of A.B. from Colby University in 1879 and that of M.D. in 1882 from the Bowdoin Medical School. He immediately settled in Boston where he had continued active in the practice of his profession until his death. He is survived by his widow.

CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Oct. 11, 1915, are as follows: Diphtheria, 39, of which 1 was non-resident; scarlatina, 16, of which 3 were non-resident; typhoid fever, 13, of which 3 were non-resident; measles, 7; tuberculosis, 49, of which 6 were non-resident. The death rate of the reported deaths for the week was 14.04.

The Boston Medical and Surgical Journal

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October 28, 1915

MASSACHUSETTS MEDICAL SOCIETY

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Massachusetts Medical Society.

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I.

NON-TUBERCULOUS CASES IN THE STATE SANATORIA.*

By ELLIOTT WASHBURN, M.D., RUTLAND, MASS.

ARE there such cases in the State Sanatoria and, if so, is their number sufficiently large to be a matter of any especial importance in view of the fact that the waiting list of applicants for admission is so long that sometimes favorable cases become unfavorable before it is possible to admit them?

In short, are we caring for any cases which, because they are non-tuberculous, ought not to be in the sanatoria?

When the Rutland Sanatorium was established nearly seventeen years ago and somewhat successful efforts were made through examina-

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tions by special, skilled examiners to restrict admissions to very early and favorable cases, it was not uncommon to hear the remark even from physicians, "So and so was cured of consumption at Rutland—I wonder if he really had it?" To-day we still try to reserve Rutland for early cases in adults. In addition we have at Lakeville, North Reading and Westfield a large number of advanced cases in adults while at Westfield we have also about 150 children in all stages of the disease. Therefore, our search for the non-tuberculous must be made in adults and children admitted as presumably in all stages of the disease.

Off-hand it would seem that the chance of error in diagnosis in well-advanced or far-advanced pulmonary tuberculosis either in adults or in children ought to be small. Probably it is, and yet, on the other hand, Dr. Ash, pathologist of the Boston Consumptives' Hospital at Mattapan, reported that although that institution is intended for the care of the tuberculous only, and that most of the cases are far advanced, in 198 autopsies at that hospital 23 cases or 11.5% of all cases which came to autopsy proved to be non-tuberculous. In these 23 cases it was found that instead of tuberculosis the true conditions were pneumonic sequelae in eight instances, chronic cardio-renal in five, septicæmia in two, aneurysm of the aorta in two, malignant disease of the lung in five and actinomycosis in one. He stated that 353 autopsies reported from eight institutions in this and other states caring for a similar type of cases of tuberculosis showed 38 or 10.8% non-tuberculous.

* Read before The Massachusetts Medical Society, June 8, 1915.

If this percentage of variation or error, if you please, in diagnosis can be accepted as fairly true and constant in patients admitted to special hospitals as advanced in tuberculosis, may we not well ask "What is the percentage of variation in cases which are admitted as early or incipient cases—in which the true diagnosis is admittedly more difficult than in the advanced types?" Some patients come in with very vague symptoms and signs "pointing to tuberculosis"; their sputum, if they have any at all, is persistently negative; they have little or no cough; Von Pirquet may be negative or positive; after a short time their vague symptoms and signs clear up and they go home. Who shall definitely say that they were tuberculous or that they were non-tuberculous?

I shall leave to others who are to read and discuss the papers of the afternoon the consideration of the errors of diagnosis in supposedly advanced cases in adults and in all stages of the disease in children. At Rutland cases are supposed to be early and favorable at least on admission. In passing it is to be deplored that any attempt to study the question in our State Sanatoria is almost insurmountably handicapped by our utter lack of autopsies to verify or to disprove our clinical diagnoses. Without them it is hard to make statements with any degree of authority.

Up to June 1, 1915, there were admitted to Rutland 10,361 patients as presumably in the early stages of consumption. Of this number 1651 were discharged as "not considered" because from nostalgia, discontent, inability to adjust themselves to sanatorium conditions, family reasons or other causes they elected to remain less than one month. I have found records since December 1, 1909, taking this five and a half year period as being probably typical of the whole seventeen years of the sanatorium's life, of 20 cases which were discharged as probably non-tuberculous. Of this number, only four remained more than two months; in other words, in these four instances it required more than two months even with our special skill and facilities before we could be reasonably certain that these cases were non-tuberculous. These cases demonstrate that the physician who states positively, as some do, on one examination, that a patient is non-tuberculous is, to say the least, exposing himself somewhat broadly to the possibility of error. At the present time we have several cases in the sanatorium which we are coming to believe are non-tuberculous.

Is it fair to assume that these twenty cases were really all the non-tuberculous cases which were residents in the sanatorium during the stated period? Who shall say? We have no autopsy findings; approximately 35% of all our cases at Rutland have negative sputum or no sputum at all during their entire sanatorium residence; until recently no Wassermanns have been made and even now we are just arranging the details necessary to make routine Wasser-

manns on every patient upon admission; the Von Pirquet test is not infallible. Personally, I feel somewhat strongly that this is not the number of the non-tuberculous during this period. But—who knows? Given certain cases with vague symptoms, signs and unsatisfactory tests one competent observer will say, "They are tuberculous," and another equally competent will say, "Well, they may be, but I do not believe it." Accordingly they are recorded as tuberculous or non-tuberculous, according to the personal equation of the one observer or the other.

In the early stages of this disease the symptoms and signs may be very indefinite. The symptoms are those which may be found in other diseases: the signs may not be sufficiently pronounced to make possible the positive statement that they are those of pulmonary tuberculosis to the exclusion of other diseases affecting the respiratory organs which may have signs somewhat simulating those of early consumption. The chance of confusion or even of error is by no means small. Take, for example, the following which was one of the cases included in the twenty mentioned:

A lad of 15 with a history of old asthmatic attacks for years during and following which he had cough and expectoration, each attack lasting for 36 to 48 hours. On admission he had dullness at the right apex—whistling râles heard over both lungs, particularly over bronchial area—a few clicks at right base—doubtful atelectasis—practically the findings of chronic emphysema. Sputum persistently negative. Von Pirquet negative. Highest afternoon temperature during sanatorium residence 99.4. Discharged after six months as doubtfully tuberculous; right apex still dull.

Eight cases of the twenty presented to us neither history, symptom nor sign of pulmonary tuberculosis nor indeed of any other disease which we could determine. Beyond the fact that they appeared a little run down from occupational or other non-disease causes and that they recuperated rapidly in the short time under our observation, there is nothing to say about them. These cases were kept for periods of from two weeks to four weeks because they were sent in by fairly good men in deference to whose opinion in sending them in at all we kept them until we were reasonably sure that they were non-tuberculous.

One anemic and extremely neurotic young woman presented no valid evidence of tuberculosis.

A man, 37, sent in by a competent observer, suffered from nervousness and from chronic laryngitis which may have been due to his occupation that of iron moulder involving exposure to extremes of temperature and to dust. At all events we did not deem it to be tubercular in its nature. His general condition was impaired; no signs of pulmonary disease; temperature normal throughout sanatorium residence of one month. Improved markedly in general and in laryngeal conditions. Discharged as non-tuberculous.

A man, 41, dullness and somewhat rough inspiration at right apex; no distinct râles heard; no elevation of pulse or temperature. Complained of cough but was not heard to cough. Sputum and Von Pirquet negative. Discharged as non-tuberculous or at least with no active tuberculosis.

A woman with dullness at both apices; all other signs and tests negative during sanatorium residence of one month. Somewhat doubtful history of previous pulmonary disease; discharged as non-tuberculous or very doubtfully tuberculous.

A man highly neurotic but negative as to pulmonary tuberculosis.

A young man of 20 with a history of a fall one month previous to filing application for admission, which wrenches his right chest. Admitted with dullness at right apex with moderate number of râles. Highest sanatorium temperature 99.2. Sputum and Von Pirquet negative. Râles were heard at first but all symptoms rapidly disappeared. Tuberculin test six weeks after admission was negative, no reaction whatever. Discharged as probably non-tuberculous.

A young girl of 17 admitted pale, thin and run down but with absolutely no signs that we could detect of pulmonary tuberculosis. History of close contact for long periods with two tuberculous sisters. We found no active tuberculosis but may have been a so-called pre-tuberculous case. She made marked improvement during her stay.

Man, 27, who showed on admission slight pleurisy at left base anteriorly which cleared up entirely in a few weeks. He claimed to have had positive sputum in March, 1913. We found no positive signs of pulmonary tuberculosis and his sputum was persistently negative during his sanatorium stay. In September, 1913, Von Pirquet negative.

A case showing no temperature, no elevation of pulse rate, no cough, negative sputum, had slight dullness at right apex and positive Von Pirquet skin reaction but after six weeks' observation was discharged as probably non-tuberculous.

One case admitted with dullness and râles at left base which slowly cleared up was discharged after two months as non-tuberculous. This was believed to be an undoubted case of unresolved pneumonia.

A case which had been under observation at a Day Camp for several months was discharged after four weeks as probably non-tuberculous. We found absolutely no signs of pulmonary disease although he had a weak heart action without abnormal sounds.

A woman with dullness but no râles at right apex. Tired very easily; did not react to Von Pirquet tuberculin test; sputum negative; pulmonary examination negative; discharged as non-tuberculous.

The following case is now under our observation:

A young woman, 22, admitted from the Massachusetts General Hospital on May 11 with the following notes taken at that hospital:

"Admitted Massachusetts General Hospital April

20, 1915. History of fainting spells. Has had gastric distress and dyspnoea for a week but no other respiratory symptoms or symptoms of tuberculosis. Has lost eight pounds in weight.

"Left chest full of fluid displacing heart markedly to the right.

"Left back shows broncho-vesicular breathing. Dull with diminished bronchial voice.

"X-ray on April 21. Left chest is dull as high as clavicle. Heart and trachea displaced to right. Both apices appear normal. Pathological process in left chest which may be fluid or tumor. The marked displacement of heart and trachea without complete dullness of left chest suggests mediastinal tumor.

"Tapped April 21 and 42 ounces of clear, yellowish fluid removed.

"Tapped again April 22 and 20 ounces more removed. Much more remains.

"X-ray on April 24. Lower half of left chest is dull. Dullness rises higher in axillary and medial line. No positive evidence of phthisis. Heart shadow within normal limits. Fluid in left chest.

"Tapped again April 27—eight ounces removed, all that could be obtained. Temperature coming down.

"Wassermann and Von Pirquet negative. Sputum negative as to tubercle bacilli.

"May 11, transferred to Rutland."

This case is now under our care. There is evidence of a small amount of fluid in the left chest; she runs a little temperature but is improving in her general condition. Unless we accept the dictum that all wet pleurisies are tuberculous, we would lean to the opinion that she is non-tuberculous. She may be one of those cases whose tuberculosis first becomes readily apparent to the ordinary practitioner about two years or so after the initial pleurisy. Time alone will tell.

Beside this case we have in the sanatorium at this writing two other cases of which we are in doubt; with symptoms, signs, tests and histories so uncertain that we hesitate to classify them. And yet if they are not tuberculous what is their disease? Border line cases in diagnosis.

We have no record at Rutland of any case which we deemed to be solely syphilitic although we have had, and have at present, cases which to us are undoubtedly cases of pulmonary tuberculosis which gave very definite histories and tests for syphilis. One case in particular has been of interest to us as he presented what we deemed to be unquestionable signs of well advanced tuberculosis in both lungs with sputum which was repeatedly positive. His Wassermann was positive and a well known syphiligrapher was quite strong in his belief that the case was one of syphilis rather than of tuberculosis, in spite of the positive sputum and pulmonary signs which to us appeared so indicative of tuberculosis. He has been under our observation at intervals for three years.

We have no record of any case which we considered to be solely one of malignant growth although we have just discharged a woman who, during her sanatorium residence was operated

upon for a breast growth which the pathologist reported to be benignant. She was without doubt tuberculous.

These cases illustrate fairly well the nature of the cases which after careful consideration we at Rutland have deemed to be non-tuberculous. The percentage of our admissions in the period stated, namely since December 1, 1909, so considered, is so small that it appears to warrant the statement that after all it is not a matter of especial importance in connection with the question of their right to be in the sanatorium. Autopsy findings if they were available might reverse or markedly modify this belief but in their absence we are necessarily bound by our clinical findings.

Whether this small percentage at Rutland holds true in the other sanatoria which have to deal with many more far advanced cases than does Rutland, their own medical staffs will discuss.

II.

ERRORS IN THE DIAGNOSIS OF CHRONIC PULMONARY DISEASE.*

BY JOHN B. HAWES, 2D, M.D., BOSTON.

THE diagnosis of incipient tuberculosis is by far the most difficult and likewise the most important problem which confronts us in the anti-tuberculosis campaign. When the disease has progressed beyond the early stages the diagnosis is usually only too evident. Each one of us, however, occasionally meets with patients who have marked signs of pulmonary disease very suggestive of tuberculosis which later on, usually to our surprise and often to our chagrin, turn out to be due to something else. It is quite unfair to these patients to stamp them at once as advanced consumptives. It is unfair to our sanatoria and hospitals to admit such patients as these while our waiting lists are crowded with real consumptives in urgent need of treatment for themselves and of isolation from others. This paper is based upon a series of such patients who have been sent to me as probable cases of pulmonary tuberculosis. In each of them I have been forced to the conclusion that the disease was not due to tuberculosis, but to some other cause. This study of these patients has brought out many interesting and valuable points, and has, I hope, made it less easy for me to make the same mistakes in the future that I have made in the present instances. These cases involve the differential diagnosis between pulmonary tuberculosis and cancer, syphilis, and so-called influenza infections. I shall present the important features of each case briefly, and then take up the more striking points in diagnosis.

CASE 1. W. C. H. The patient is a married man of 40, a teacher by occupation. His aunt and first wife died of tuberculosis. His previous history is negative, except for an occasional attack of gripe.

In June, 1904, shortly after his wife's death, when he was very much tired out, an excellent diagnostician found indefinite signs in his lungs. He evidently suspected tuberculosis. This suspicion was confirmed shortly after by a prominent lung specialist. Of fifteen sputum examinations, one was said to have been positive. This was made, however, in the out-patient department of a large institution where many other examinations were constantly being made. His doctor advised him to keep on at his work as principal of a large high school, which he did for two months when he went to a private sanatorium in Rutland. During this time, many sputum examinations were made, none of which was positive. He went back to his work as a school superintendent in 1905, a year later, and has worked steadily ever since without symptoms until recently.

About May 1, 1914, he began to feel rather tired and run down and noticed a slight cough. A local physician told him that his old trouble had broken out again and was rather pessimistic as to the future. He advised him to take one year of absolute rest in a different climate. This advice was confirmed by his own family doctor.

When I first saw him, September 5, 1914, he felt perfectly well except for slight weakness. He had a very slight cough, with a little sputum in the morning. Physically he was a large, strong, healthy-looking man weighing 207 pounds, with normal temperature, a low pulse, and a blood pressure of 130. At the base of the left lung there was moderate dullness with slightly diminished breathing, and numerous râles of all kinds in the axilla and back below the scapula. There were no râles elsewhere. In spite of the one sputum examination which was said to have been positive in 1904, I was unwilling to believe that this was tuberculosis. He was seen by Dr. W. H. Smith of Boston, who agreed with me. The Wassermann test was negative. The x-ray by Dr. Walter Dodd showed "certainly no positive evidence of tuberculosis, empyema, or lung abscess." There was a negative reaction to old tuberculin in doses of 1/10 mg., 1 mg., and 10 mg. given subcutaneously. Sputum was negative for tubercle bacilli, but contained many organisms resembling those of influenza. The patient was advised to go back to his work as a school superintendent and to lead a normal healthy life. This he has done, and has been perfectly well ever since. At present, with the exception of a few sticky râles after cough, his lungs are normal.

It is possible that this case may have been, and still is, one of tuberculosis. Personally, I think that the repeated negative sputum examinations, despite the one which was said to have been positive, and the negative subcutaneous tuberculin test is the strongest possible evidence against tuberculosis. It seems to me that it would have been a grave injustice to have made this man give up work for a year, to have sent him to a sanatorium, and to have practically condemned him to an invalid or semi-invalid life for a long time to come. On the other hand, it is certainly quite unsafe for him to forget altogether the fact that he has been distinctly under suspicion. A case of this kind should report regularly every four or five months for examination, no matter how well he may be feeling. As to the exact diagnosis, I should be inclined to call it chronic

* Read before The Massachusetts Medical Society, June 8, 1915.

influenza, although I must admit that influenza has become somewhat of a general term covering various non-tuberculous lesions.

The second case resembles the first in many respects.

CASE 2. P. K. This man is a teacher 48 years old. His mother, father, wife, and one sister died of tuberculosis. Until he reached the age of seven years, he was considered rather delicate; after that, perfectly well. He was about five pounds under weight when I saw him. Two years and a half ago, his wife died of tuberculosis after a two years' illness. The patient slept in the same room and in the same bed during the greater part of the time.

Last summer, in 1914, while in camp, he was taken with sudden pain and oppression in the chest, with cough and yellow sputum. He came home and saw Dr. Irving Fisher of West Newton, who found very little in his lungs. When I saw him, in September, 1914, except for the fact that he did not feel quite so strong as usual, he was in very good condition. He had a moderate cough with yellow sputum. He came for an examination in order to rule out tuberculosis. He, himself, felt fairly well.

Physical examination showed a strong, healthy-looking man, with normal temperature and pulse, weight 162. Blood and urine were normal. Sputum shows no tubercle bacilli, but many influenza bacilli and pneumococci. Near the base of the right lung, in the axillary line over an area of two and a half inches in diameter, after a cough only, there are showers of fine râles. There was no change in breathing or vocal fremitus here or elsewhere. X-ray report by Dr. Walter J. Dodd states as follows: "In the region between the second and third interspace on the right, there is an irregular dense area which is probably an extension of a process from the root of the lung. The apices do not seem to be involved. This may perfectly well be tuberculosis, but we do not feel justified from this evidence alone in stating so positively." My last note on this patient was dated February 13, 1915, when he stated that he was perfectly well in every way without cough or other symptoms. The lungs were perfectly clear.

This case very much resembles the first one in that there was a very marked and prolonged exposure to tuberculosis along with constitutional and local signs and symptoms which might perfectly well be due to that disease. On the other hand, as in the first case, I felt, as I always feel, that in diagnosing a process at the base of the lungs, the burden of proof is distinctly on the doctor to show that it is tuberculosis and not something else. Here, again, it would have been perfectly easy to have railroaded this man to a sanatorium or to have put him on a strict regime which would have made an invalid of him for one or two years.

I do not like to call such cases chronic influenza. Dr. F. T. Lord would, I believe, classify this case and the first one as a chronic pneumonitis which may or may not be due to the influenza bacillus, in this case probably not.

CASE 3. E. S. This patient was a clergyman 48 years old. His family history shows no direct

exposure, although six aunts died of tuberculosis. He had had a suppurating middle ear off and on for many years. In 1905 he had an attack of so-called intercostal neuralgia which, on questioning, seemed to me more likely to have been a pleurisy. In 1907, he was very much run down, and had enlarged glands on the right side of his neck. He was in the Massachusetts General Hospital at this time where his case was diagnosed as one of tuberculous cervical adenitis.

I first saw him November 8, 1914, at a sanatorium in New Hampshire. He told me that in the early spring of this year he developed a cough with a fever, and began to lose weight and strength. He was placed under fairly rigid home treatment for a few weeks, and was then sent to a nearby sanatorium. At the time I saw him, he had a harrassing cough with very little sputum. No tubercle bacilli were found on repeated examinations. He never raised any blood. Extreme weakness was a striking feature. On examination, I found a temperature of 101, pulse of 120, moderate secondary anaemia, normal urine, and a blood pressure of 130. The patient was well developed with flabby muscles. There were some cherry-sized glands in each axilla. There was slight dullness at each apex with a few crackles after cough on the right. On the right side, from the third rib downward, there was dullness becoming flatness, with diminished breathing, and many sticky râles before and after cough. At the extreme base the râles were not so numerous. My diagnosis at this time was tuberculosis of the right apex, thickened pleura, and a tuberculous pleurisy with probably a little fluid on the right side.

A month later the patient left the sanatorium and came to Boston. His constitutional symptoms were still marked. The lung showed increased dullness, fewer râles, and a heart displaced to the left. In the right scapular region, there was distant bronchial breathing and whispered voice. X-ray showed nothing except an intense shadow over practically the entire right lung with the heart slightly to the left. I tapped his chest one and one-half inches below the angle of the scapula on the right, but obtained nothing. I then began to feel sure that this case was not one of tuberculosis. He was seen in consultation with me by Dr. W. H. Smith, who agreed as to the probable non-tuberculous nature of the process. We both felt that a concealed pocket of pus was the most likely diagnosis. I then asked Dr. Wyman Whittemore to see this patient with a view to operation. After further study and observation, we decided to operate in order to rule out a possibility of any hidden pus. The operation revealed a curious friable mass of solid material occupying the greater part of the right pleural cavity. This, on examination by Dr. James H. Wright, turned out to be malignant disease, probably hypernephroma. The patient died shortly afterwards.

This case has many interesting features. I do not see how anyone, in the early stages of this process, could have made any other diagnosis except pulmonary tuberculosis. Later on, however, the points against tuberculosis became more evident, namely, the increasing signs of disease in the lungs with a small amount of sputum, and the absence of fluid. Without operation, I doubt if the correct diagnosis would have been reached. His stay at the sanatorium certainly did no harm, as the outcome was inevitable in

any case. In a recent talk with Drs. Baldwin and Kraus of Saranac Lake, I find that they have had three or four of these cases of hypernephroma at Saranac during the past few years. There is one patient there at the present time in whom this diagnosis has been made. In no other instance, however, was the diagnosis made except at post-mortem. I think this condition an extremely difficult one and oftentimes an impossible one to detect, at least in its early stages. It should be borne in mind, however, as a possibility whenever there is marked weakness, grave anemia, and extensive signs in the lungs out of proportion to the cough and the amount of sputum raised.

The next three cases are those which are usually called influenza processes. This, as I stated before, has come to be a general term for a more or less subacute non-tuberculous infection of the pleura and the base of the lung.

CASE 4. P. C. This patient was a young Italian of 20. His family history was excellent and his previous history negative. He felt perfectly well until three weeks ago when he was suddenly taken with a dizzy spell, some fever and loss of appetite. He had a slight cough. He improved slowly in general condition but continued to cough and to raise yellow sputum.

Temperature and pulse were normal; he was about 10 pounds under weight. There were a few crackles and slightly increased signs at the right apex, and many sticky râles, with moderate dullness up and down the entire left chest before and after cough. The sputum was a thick greenish pus full of bacilli resembling those of influenza. This condition in his lungs continued for a few weeks, but finally cleared up, leaving only occasional dry râles in the left axillary region. His weight returned to normal.

CASE 5. R. S. This patient is a lawyer 42 years old, with an excellent family history. He was said to have had pulmonary tuberculosis as a child. On June 12, 1914, when feeling perfectly well except for the fact that he was more or less tired out, he was suddenly taken with an acute grippy attack, accompanied by a slight cough, a fever of 101, and a rapid pulse. When I examined him at this time, I found at the base of the right lung dullness, diminished breathing, and numerous sticky râles. This condition continued for a few weeks, with slight evening fever, rapid pulse, and every sign, constitutional and local, of a beginning tuberculous process at the base of the lung. Repeated sputum examinations, however, showed no tubercle bacilli but many bacilli resembling those of influenza, and a few pneumococci.

Gradually this process cleared up so that at present, with the exception of slight dullness, the lungs are perfectly normal, and the patient's general condition is as good as it ever was.

CASE 6. D. W. This patient is a strong healthy young shipping clerk of 23. His family history and habits are excellent. His past history is not unusual. On March 27, 1915, he first noticed pain in the right side of his chest, worse on walking or on breathing, so that he could take only short breaths. There was some cough and sputum. Two weeks later, he raised some blood mixed with saliva. When

I saw him, aside from slight pain in his chest, he felt perfectly well and said that his strength, appetite, etc., were normal in every way.

On examination, I found a normal temperature, a pulse of 70, and weight nearly up to normal. He looked perfectly well. At the base of the right lung, there was moderate dullness with numerous sticky râles; the apices were clear, and the heart was in normal position. The sputum was a yellowish pus with numerous organisms resembling those of influenza. No tubercle bacilli were found. Two days later, over the dull areas signs of consolidation became evident with intense bronchial breathing, bronchial whispered and spoken voice over the lower lobe on the right. His temperature reached 99.4 at one time, but aside from this, was perfectly normal.

I placed him in a hospital under observation. After two or three days of normal temperature, I put him through a subcutaneous tuberculin test. The only sign pointing to a reaction of any kind was a rise in temperature up to 100.6. Constitutional signs and symptoms of a reaction were of the slightest, and there was no change in the suspected area in his lungs. I considered this a negative reaction as far as the process in the lungs was concerned. The temperature came down to normal and has been so ever since. The pulse stayed between 70 and 85. The lungs gradually cleared up, so that a few weeks later they were normal in every way.

These three cases are to me distinctly puzzling. In one of them, Case 5 (R. S.), there was a past history of tuberculosis. In the last one, there was a history of spitting of blood. In each instance, as far as the signs in the lungs were concerned, tuberculosis had to be seriously considered. Had it been impossible to put these patients under careful close observation, or had their mentalities been of a type which required an immediate definite and categorical answer as to whether they did or did not have pulmonary tuberculosis, I feel that I probably would have said in each instance as a result of my examination alone that the chances were in favor of tuberculosis and that the patient should go to a sanatorium or elsewhere. This certainly would have done no harm, and the result would have been a brilliant and rapid cure that would have enhanced the sanatorium records. I am extremely thankful that I did not do this. Exactly what was going on in the lungs and how important a factor the organisms resembling influenza were in this process, I am not prepared to state. I do feel, however, that there are many patients who are called tuberculous and who are sent to sanatoria, who belong to this class.

CASE 7. T. P. This patient is an Italian of the lower class, 38 years old, born in Italy. There was a definite history of exposure to syphilis, although I could obtain no history of any lesion. He came to the Massachusetts General Hospital stating that a year and a half ago he began to have coughing and choking spells so that breathing was very difficult. He felt as if there were a constriction under the lower part of his sternum. These attacks came once a month, associated with pain in the back. He weighed 175 one year ago, and weighs 138 now. He has been getting progressively weaker, and has done

no work for a year. At the present time he has a normal temperature and pulse. He has evidently lost much weight. The right pupil is irregular, and is smaller than the left. They both react, though sluggishly. There are a few pea-sized glands in the neck. The lungs show poor resonance all over, especially at each apex, more on the right than on the left. There is high-pitched expiration, with expiratory, sibilant, and sonorous râles all over. The signs are increased at the right apex. There is no interscapular dullness, the d'Espine sign is negative, and clinically no other evidence of mediastinal glands or other tumor.

The x-ray taken April 27th, showed dense masses of glands at both lung roots and a slight dilatation of the aortic arch. The heart is slightly enlarged to the left. Dr. Dodd reports the picture as rather suggestive of tuberculosis. The Wassermann reaction, according to the laboratory report, is suspicious. Sputum examination is negative. On this patient's first visit to the hospital, the signs of an active process in the lungs were confined to the right apex; while on the second visit, they were scattered over each lung.

The exact diagnosis in this case has not yet been made, but it is believed that it lies between syphilis and malignant disease, probably the former. There is certainly sufficient evidence of a luetic infection to justify placing him under rigorous treatment. Were this patient seen under circumstances where an x-ray examination and a Wassermann test could not be obtained, the diagnosis of pulmonary tuberculosis would be justified. He represents another type of case which can probably be found fairly frequently in any large sanatorium.

CASE 8. E. A. S. The patient is a post office clerk, 38 years old. The family history is excellent. He said that he had never been robust and had always been subject to frequent attacks of bronchitis. His maximum weight was 137 pounds 14 years ago; present weight, 119 pounds. He has been exposed to syphilis, but denies ever having contracted it. Twenty years ago, when 18 years old, he went to work in a factory where, owing to dust and his own tendency to repeated colds, he went rapidly down hill. He has been a letter carrier for the last ten years.

Eight or nine years ago, he had a right-sided pleurisy and has had symptoms in his right side ever since. Tuberculosis has been strongly suspected, but never definitely diagnosed. Two years ago he was sent to Denver, Colorado, where the physicians were unable to confirm the diagnosis of tuberculosis. The sputum was constantly negative, and there was no fever at any time. Despite this, however, he was given tuberculin for three months without any reaction. He returned to work in New York State as a post office clerk four or five months ago. He gave a history of at times having had large amounts of fairly liquid sputum which would flow out of his mouth night and morning on stooping over. This was brownish, often a reddish color, but never of an especially foul odor. When I first saw him, September 23, 1912, he had a recent cold, and had raised rather more than usual, although never in recent months so much as at times previous. He is very easily out of breath; his strength and ap-

tite are poor. He has seen many doctors all over the United States who have given as many different opinions as to his condition.

The patient is fairly well developed, very poorly nourished; his color is good. He is a sparely-built man of the wiry type. His temperature is normal; pulse, 74; weight, 119 pounds. The blood is normal. The urine contains the slightest possible trace of albumin, but nothing in the sediment. Blood pressure is 134. The sputum, of a brownish red color, showed a variety of organisms, but no tubercle bacilli. There is considerable arteriosclerosis with visible pulsation of the arteries. The heart is slightly pushed over to the left; otherwise it is normal. On examination of the lungs, I found what was evidently a compensatory emphysema of the entire left chest with harsh prolonged expiration everywhere. There were signs of extensive disease over the entire right chest with dry, fine, sticky râles everywhere below the fourth rib. Under the second and third ribs, near the sternum, was amphoric breathing easily noticed with a stethoscope or naked ear. The back shows signs similar to those in the front. On subsequent examinations, although the signs were changed to some extent here and there over the right side of the chest, the general features remained the same.

I was quite unable to come to a definite diagnosis, but merely felt very certain that the patient did not have tuberculosis. He was seen by Dr. W. H. Smith who likewise could come to no definite conclusion, but agreed with me that it was not a tuberculous process. The Wassermann was negative. The x-ray examination showed simply a much thickened pleura on the right, with the heart pushed over somewhat to the left. After studying this case for two weeks, Dr. Smith and I came to the conclusion that the process was either malignant disease or syphilis.

Nine months later, July 30, 1913, I saw him again. He had gained weight, and had more than held his own. His strength was distinctly better. He had been taking iodide of potash and mercury. On examination, I found very little air entering the right chest, but on the whole the condition in the lungs about the same as before except that there were fewer râles. I did not see him again until February 25, 1915. He told me that in December, 1913, he went to Saranac Lake after having had three months of pleurisy. He was tapped once and a little fluid removed. He stayed at Saranac Lake until March, 1915. During this time Dr. Sidney Blanchet tapped his chest once and removed one and a half pints of pus. His weight went down to less than 100 pounds. He raised much fluid pus by mouth. He was very sick in bed from December, 1913, to October, 1914, when he suddenly began to get better. He told me that he gained 21 pounds in 24 days. His present weight was 133 pounds which is more than he has weighed for many years.

On my examination at this time I found a normal temperature and pulse. The left side of his chest showed compensatory emphysema and no râles; the right side was dull above, flat below, much retracted, with only an occasional râle after cough. His general condition was excellent.

I am perfectly frank in stating that I do not know what pathological process has been going on in this man's chest. The impression I gathered from the doctors at Saranac Lake was that

they considered the whole thing to be tuberculosis. Despite their opinion, I am quite unwilling to believe this to be so. The length of time has ruled out malignant disease. Syphilis cannot be excluded. Extensive lung abscess or chronic empyema are the most probable diagnoses. No one, however, can be blamed in any way for calling this a case of pulmonary tuberculosis and treating it as such.

These cases have taught me several valuable lessons. Especially have I been impressed with the need of taking nothing for granted and not jumping at conclusions. From one examination alone, it would have been very easy to have called each one of these patients a consumptive. While this would have probably done no physical harm in any instance, and more likely the reverse, the injustice to the patient and to others is so manifest as not to need comment.

Again, this series has emphasized the multiplicity of chronic and subacute pulmonary infections and how little we know of the exact pathology of many of them. In these days, the words "tuberculosis" and "influenza" are used to cover much ignorance.

Finally, the value of a careful and painstaking history, and of a thorough routine examination of the lungs and of the whole body, not only once but often repeated, if necessary, has been clearly demonstrated.

III.

WHAT CONSTITUTES TUBERCULOSIS IN CHILDHOOD?

BY JOHN LOVETT MORSE, A.M., M.D., BOSTON,

I HAVE been asked to present a paper before you on what constitutes tuberculosis in childhood, presumably because it was thought that a pediatrician who does not make a specialty of tuberculosis might approach this subject, concerning which there is so much difference of opinion, with a more open mind than the specialists who have already preconceived ideas regarding it. I have found the subject a most difficult one, and make no claims that I have answered the question correctly. The title of my paper should be, therefore, "What I Think Constitutes Tuberculosis in Childhood." I am sure that not all of you will agree with my conclusions, but hope that they will find favor with at least a few.

It seems to me that in the first place it is absolutely necessary to distinguish between tuberculous infection and tuberculous disease. In this connection, infection may be defined as the state of being infected, and disease as an alteration in the state of the body or of some of its

organs, interrupting or disturbing the performance of the vital functions and causing symptoms of some sort.

For all practical purposes, the infant comes into the world free from tuberculosis. In round numbers, ten per cent. of all infants have become infected with tuberculosis by the end of the first year of life, and at 16 years not more than ten per cent. have escaped infection. A very small proportion of these children, however, have tuberculous disease. Those that are well and show no symptoms of tuberculous disease are little, if any, worse off than those who have not been infected. In fact, it is probable that in many, if not most, instances they are better off, in that they have established a certain immunity to tuberculosis.

Children infected with tuberculosis react positively to a von Pirquet tuberculin test, unless they are overwhelmed with the disease. A positive tuberculin test, in itself, signifies nothing more than tuberculous infection; it does not denote tuberculous disease. Taken in connection with other signs of disease, it strengthens, but does not prove, the assumption that the disease may be tuberculosis. The younger the child, the more strongly a positive von Pirquet test points towards a diseased condition being tuberculous. With certain limitations, a negative von Pirquet test excludes both tuberculous infection and tuberculous disease.

Tuberculous infection in childhood is almost invariably glandular. In the struggle to overcome the infection the glands become enlarged and indurated. When the cervical glands are enlarged they can be seen and felt. The mesenteric glands can be felt, if sufficiently enlarged, while the tracheo-bronchial glands, although neither visible nor palpable, give rise to certain definite physical signs. The demonstration of glandular enlargement, whatever its situation, even if other causes than tuberculosis for the enlargement can be excluded, does not, however, prove that the condition is one of tuberculous disease. It merely shows that there has been a tuberculous infection at some time. The condition is not one of disease unless other tissues are involved or the glandular enlargement is associated with symptoms of disease, such as fever, malaise, debility, loss of weight, and so on. This statement is quite as true as regards enlargement of the tracheo-bronchial as it is of enlargement of other glands, although there seems to be just now a tendency to consider the signs indicative of enlargement of these glands as evidences in themselves of tuberculous disease. This is especially true of d'Espine's sign.

There seems to be some difference of opinion, unfortunately, not only as to the significance of d'Espine's sign, but also as to what d'Espine's sign really is. This sign, as d'Espine originally described it, consisted in the persistence of the bronchial whisper below the seventh cervical spine. Others have claimed that the bronchial whisper is normally heard down through the

second dorsal spine, and some that it is heard even lower. Others have used the voice instead of the whisper, and still others have claimed to get the same results from the character of the respiratory murmur. My own belief is that the whisper is more reliable than the voice, and that the respiratory sound is less reliable than either. The respiratory sound gives fairly satisfactory results, however, and may be used in infants who will not talk or cry. It is also my belief that d'Espine was right in fixing the normal lower limit of the bronchial sound at the seventh cervical spine. I do not myself call the sign positive, however, unless the bronchial sound extends below the first dorsal spine. D'Espine's sign simply shows that there is some tissue denser than normal between the trachea and bronchi and the anterior surface of the vertebrae, which transmits the bronchial sound from the trachea and bronchi without modifying it. It shows nothing as to the nature of this tissue. Experience has shown that it is usually enlarged tracheo-bronchial glands. The etiology of enlargement of the tracheo-bronchial glands is the same as that of enlargement of other glands. Enlargement of the tracheo-bronchial glands, therefore, may or may not be tuberculous. If the enlargement develops in the course of some acute infection of the lungs or bronchi, it probably is not tuberculous, and usually promptly disappears. If it develops slowly and is persistent, it usually is tuberculous. A positive d'Espine sign, of itself, merely shows, therefore, that there is probably enlargement of the tracheo-bronchial glands. It shows nothing as to the nature or etiology of this enlargement. These points must be decided on other evidence. If a positive d'Espine sign is associated with a positive von Pirquet reaction, the chances that the enlargement of the tracheo-bronchial glands is tuberculous are increased. The chances of the enlargement being tuberculous are still further increased, if the sign is persistent. Even under these conditions, however, if the child is well, the condition should be looked upon simply as one of infection, not of disease. If a positive d'Espine's sign is not associated with a positive von Pirquet reaction, the enlargement of the glands is certainly not tuberculous, and it is of no significance in this connection. If a positive d'Espine's sign is associated with a positive von Pirquet reaction and there are signs of acute disease in the lungs, there is no way of determining at once whether the enlargement of the glands is tuberculous or not, and the presence of the signs shows nothing as to the character of the disease in the lungs. If there are evidences of tuberculosis elsewhere, the d'Espine sign is of no importance anyway. If a child has a positive d'Espine sign, a positive von Pirquet reaction, shows symptoms suggestive of tuberculous disease and no foci of tuberculosis are found elsewhere, it is probable that the enlargement of the glands is tuberculous, and that

they are not only infected, but also diseased, and the cause of the symptoms.

The significance of Roentgenographs which show a shadow in the location of the tracheo-bronchial glands is exactly the same as that of a positive d'Espine's sign, no more and no less. Great care should be taken, however, in interpreting the shadows in x-ray plates. Only the opinion of an expert is of much value, and that is not infrequently wrong.

There is very little room for difference of opinion as to the presence or absence of tuberculous disease of the cervical glands or bones. The same is true of tubercular peritonitis. The significance of enlarged abdominal glands is the same as that of enlargement of the tracheo-bronchial glands. The presence of physical signs of disease of the lungs is more likely to give rise to disagreement as to whether the condition is or is not tuberculous. A negative von Pirquet test, unless there is reason to suspect acute miliary tuberculosis, or the child is moribund, proves conclusively that the affection of the lungs is not tuberculosis, no matter what the x-ray findings, or whether d'Espine's sign is absent or present. A positive von Pirquet test does not, however, prove that the affection of the lungs is tuberculous. It merely increases the probability that it may be. The same is true of a positive d'Espine's sign and of Roentgenographs which show a shadow in the region of the tracheo-bronchial glands. A persistence or increase of the physical sign is in favor of the condition being tuberculous, but does not prove that it is, because influenzal and other infections of the lung are often of long duration. The persistence of constitutional symptoms and fever is of the same significance as the persistence of the physical signs. A positive diagnosis can be made in many instances, therefore, only after a lapse of considerable time or by the finding of tubercle bacilli in the sputum.

The greatest opportunity for difference of opinion as to whether a child has or has not tuberculous disease arises when a child showing a positive von Pirquet reaction manifests symptoms of general constitutional disturbance, such as fever, rapid pulse, loss of weight and strength, malnutrition, debility, fatigue from insufficient causes, anemia and dry cough, without any evident physical signs of disease. Every one will admit, of course, that this combination of symptoms and lack of physical signs when the von Pirquet test is negative does not indicate tuberculous disease. The significance of enlargement of the tracheo-bronchial and abdominal glands in this connection has already been discussed.

The presence of a definite history of exposure to tuberculosis, especially if prolonged, is strong evidence in favor of the view that the child has an active tuberculous focus somewhere, even if it is not discoverable, because of the well-known fact that a very large proportion of the children exposed to open tuberculosis in their homes be-

come infected. The younger the child and the longer the duration of the exposure, the more likely is the child to become infected and the more likely is the infection to lead to the disease. It must be remembered, on the other hand, however, that no matter how long or how great the exposure to infection has been, the child is not suffering from tuberculous disease unless it shows some manifestations of ill health. The history of the ingestion of the milk of tuberculous cows is of the same significance as that of exposure to human tuberculosis. A tuberculous family history, but without exposure, has the same sort of value, but much less, as a history of exposure.

Too much attention must not be attached in this connection to a slight elevation of temperature above what is ordinarily considered to be normal, that is, 98.6° F. I am sure that many children, apparently normal and certainly not infected with tuberculosis, frequently have a temperature between 99 and 99.5° F., especially if they have been playing hard or have been excited. A slight elevation of temperature is a very common thing from minor causes. In my experience it is much more likely to be due to some infection of the nasopharynx or the accessory sinuses, pyelitis or indigestion, than to tuberculosis. A little elevation of temperature, even if of considerable duration, does not, therefore, necessarily mean active tuberculosis, although it may.

Disturbances of nutrition, anemia, debility, fatigue and malaise are all symptoms of indigestion, overwork in school, over-exertion, late hours, lack of fresh air and many other things, as well as of tuberculous disease. Night sweats are unusual in tuberculous disease in childhood; they are not uncommon from other causes. A dry cough may be due to nasopharyngeal irritation, enlargement of the lingual tonsil and various other local irritations, as well as to tubercular tracheo-bronchial adenitis.

It is evident, therefore, that the presence of malnutrition, debility, slight elevation of temperature, anemia and so on, in the absence of evident physical signs of disease does not in itself justify a diagnosis of tuberculous disease, even if they are associated with a positive von Pirquet reaction. The presence of symptoms of constitutional disturbance without the physical signs of disease to account for them is suggestive of tuberculous disease,—that is all. Tuberculous disease should be considered seriously under these conditions, but it should not be taken for granted that it is the cause of the symptoms. Neither should it be taken for granted that it is not. When this combination of symptoms and lack of evident physical signs is present, the diagnosis should be made only after a careful and unprejudiced investigation and consideration of all the factors in the individual case. In this way only can errors in diagnosis be avoided.

There are many other points which might be

taken up and which are almost as worthy of consideration as those which have been discussed. What has been said, however, is sufficient, I think, to indicate what "I think constitutes tuberculosis in childhood," and what I conceive to be the difference between tuberculous infection and tuberculous disease.

DISCUSSION.

I. J. CLARKE, M.D., Haverhill: In the paper of Dr. Washburn, the 23 cases cited, autopsies by Dr. Ash, there were 8 of pneumonitis. I am taking this report as a basis for what I have to say. Regarding a condition which might be called pneumonitis I suppose that the location of it might easily contain some pus. It seems to me that a blood count in the absence of a high degree of mixed infection would show us a higher leucocyte count than ordinary, presuming that there is practically no fever, and it might show us a count high enough to suggest free pus. In the cases of septicemia, I think there were two, it is evident to me in the absence of marked evidence of mixed infection, or of physical signs in the lung, which would account for the condition, that a blood count might be of some help to us. In the cases of malignant disease—it appears to me that the marked displacement of the trachea is certainly a very unusual condition in an ordinary pleuritis. In regard to nephritis, it also seems to me that blood pressure perhaps ought to be taken more frequently. In this series of cases Dr. Ash did not report that they had any figures as to blood pressure. I think those four conditions,—pneumonitis, nephritis, septicemia and malignant disease,—constitute a very much larger percentage.

I believe that a great deal can be depended upon from the standpoint of the family history. In the records that I have taken, almost without exception you can find a history of exposure, of a definite, intimate, exposure, that is, all cases that in my opinion were tuberculous. The past history of the patient, it seems to me, is extremely important from the standpoint of attacks of what we call grippe, as to whether they were the symptoms of what might have been the lighting up of an old process.

There is also the evidence of the influenza bacillus, which I do not think, as a rule, is always looked after carefully. I also understand it is not an easy bacillus to find.

I should want to have a fever explained. It has been my custom to pass out to such parties as practical a thermometer, and require temperature taken three or four times a day for a month, whether I find fever at my first examination or not. It has been of great assistance in ascertaining definitely whether they had fever, and how much. I think also that a loss of weight should be accounted for. Until those two things are explained by some other reason we must assume, given a history of malaise, exposure, and general mean feeling, that the case is

tuberculous. In other words, it seems to me that it is a good deal more difficult to say to a patient that he has not tuberculosis than that he has. I think every physician has this experience,—that patients come to him and want to know if they have tuberculosis.

I should also want to know about the Wassermann test. That is not an easy matter for every one, especially in some of the small distant towns, but it seems to me that there is an occasional case of syphilis of the lung which clears up very quickly by proper treatment.

It is evident to me that there are certain heart cases which simulate tuberculosis. I feel that chest signs in any case must have some backing; a very distinct history of exposure, or something else to make you feel that they could be, or probably are, tuberculous. It appears to me also that we would occasionally find certain cases due to blood conditions. Either a borderline anemia, or a pernicious anemia, in which it would seem that a blood count would be important; also the appearance of the cells, as well as their varieties.

Another thing is the consideration of the conditions that are caused from the vocations where there is a good deal of dust. We know that the lung conditions oftentimes simulate tuberculosis. They have coughing, some sputum, which should be taken very carefully into consideration.

CARL C. MACCORISON, M.D., Superintendent North Reading State Sanatorium: I should like to ask Dr. Washburn if the 198 cases autopsied at Mattapan by Dr. Ash were taken at random, or were the doubtful cases only brought to autopsy. It would seem to me that an error in diagnosis of 11½% of all patients, dying in a hospital for the treatment of advanced consumptives, is rather high.

At North Reading about 75% of all admissions have been in the advanced stages of the disease. Last year we had 67 deaths; 65 died of pulmonary tuberculosis; all showed tubercle bacilli in their sputum during residence. One died of arterio-sclerosis, and one of organic heart disease.

I believe that about 84% of all admissions last year were found positive. On Monday of this week we had a census of 197 patients; 43 of that 197 have not been found positive. Six of the 43 are considered doubtful cases, and are under observation at the present time. Guinea-pigs have been inoculated with their sputum, and we are awaiting further developments. Four of these cases we believe to be organic heart disease, one unresolved pneumonia. We are very uncertain regarding the diagnosis of the sixth case. This leaves about 37 negative cases to account for. We feel that they are cases of pulmonary tuberculosis. Nineteen of them are classified as "advanced," 15 "moderately advanced," and 3 "incipient."

Now, out of the 37, 16 are hemorrhage cases; 8 were reported as having been found positive

previous to admission; 1 gives definite tubercular reaction; the remaining 12 give very striking histories; they have been exposed to the disease for a long period of time, and their subjective and objective symptoms are fairly well marked.

You must take into consideration that when we admit to our sanatoria a patient whose application is signed by a reputable physician, it necessitates the sanatorium physician using the utmost care before declaring a doubtful case not tubercular. We feel that we need from two to four months' study of a case before we can discharge it diagnosed as "not tubercular." The majority of the doubtful cases sent to us usually turn out to be valvular heart disease, although unresolved pneumonia, chronic emphysema, chronic bronchitis with bronchiectasis, and arterio-sclerosis account for frequent errors in diagnosis.

CHARLES E. PERRY, M.D., Superintendent Hampshire County Sanatorium: Hampshire County Sanatorium is, in spite of its name, a hospital for advanced cases, built under the act which requires cities to furnish local hospitals. We opened last September, and as yet the problem of making room for new cases has not been considered, for we still have plenty of beds. We have admitted since the hospital opened 47 cases. Of those 47 cases, 10 have shown no positive sputum during their sanatorium stay. Two of these non-positive cases have not been considered on account of their very short residence. One was discharged as probably non-tuberculous; 1 case of chronic bronchitis, with a history of syphilis, died with increasing complication. One other will probably soon be discharged as non-tuberculous. Two of these 10 cases were reported to have positive sputa within a year previous to their coming. There was another young man who was taken to the hospital, having previously been in a state sanatorium twice. He had an attack of asthma and lost about 15 pounds, and asked to be admitted. In about a week his condition improved so that there were no signs demonstrable except a slight dulness over the upper part of one lung. The remaining cases with negative sputa had fairly definite signs and the diagnoses were not questioned.

ALLEN G. RICE, M.D., Springfield: I do not feel that I can add anything to Dr. Hawes' paper. We make mistakes which I think perhaps we ought not to make if we took a little different attitude. From what I have gathered from Dr. Hawes' paper, it seems to me that if we paid, as he did, more attention to the history of these cases, personal and family, if we made sure when this patient was last perfectly well, how long he has been sick, how much weight he has lost, when he began to lose strength, if he has lost it markedly, we would have little points which, taken together, mean a great deal. It brings up the question of the relative value of the history

and the physical examination. It seems to me there can be no possible doubt. We have got to have the history; that is the most important.

The troubles with the stethoscope I think are two. In the first place the inability to appreciate signs, and in the next place the inability to interpret them. We make mistakes both ways. Simply because we find signs suggestive of tuberculosis does not mean that we should make the diagnosis. All the other points have to be taken into consideration. In other words, what we want to do is to regard the patient as a whole; not pay too much attention to the condition of his lungs. Where we have, as we do, many other chronic infections of the lungs besides tuberculosis, for instance, chronic influenza, chronic pneumococcus infection, malignant disease, and, in spite of the last speaker, I believe also syphilis, in devoting all our time simply to regarding the signs, we undoubtedly make a diagnosis of tuberculosis in cases where we should not. In addition to the history and the stethoscope we are also inclined to make mistakes because we pay too much attention to the so-called adjuncts to diagnosis. With adjuncts I include sputum examination. Sputum examination, I believe, is all right when we find tubercle bacilli. If we do not find them it does not mean the patient has not tuberculosis. The same thing can be said in regard to the x-ray. The x-ray shows lesions, but it does not necessarily show that the lesion is tuberculosis. I have seen plates where the x-ray man was perfectly positive that the case was tuberculosis, and on autopsy a few weeks later no signs of tuberculosis were found, but in this particular instance a well developed syphilitic process in the lung.

Another point which Dr. Hawes brought up was his general impression that the case was not tuberculosis; his general impression that the case was. I think these general impressions are valuable, even though they may not be scientific. One cannot get up and show why the case is or is not tuberculosis. At the same time I do believe that these general impressions are of value and should be given a certain amount of weight.

In addition to making mistakes in differential diagnosis we also make serious mistakes regarding the stage in which the disease exists. I believe tuberculosis is more often diagnosed correctly than is the stage of the disease, and the stage of the disease makes all the difference in the world to the patient. It has been said: What is the difference whether one makes an accurate diagnosis or not; treatment of chronic infections is in a great measure the same. It does make a lot of difference. In the first place it is impossible to give the patient any sort of prognosis without a correct diagnosis. The treatment is not always the same. Unfortunately, a certain stigma is attached to tuberculosis, which other chronic infections of the lung do not share. It is almost criminal to stamp a patient as tuberculous simply because he has a chronic process in his lungs. I am coming to believe that by

the time we find definite signs in the lung the case is beyond the incipient stage. These signs may be slight, may be localized at one or two points. At the same time when the signs are definite I cannot help but believe that in the majority of instances the case is beyond the incipient stage. In contradistinction to that, I also believe that a positive sputum examination does not mean that the case is necessarily beyond the incipient stage. There are bacilli in the sputum if the lesion is broken down. The lesion may break down in a very small area, so small that we cannot detect any signs over that area. Take also the cases of hemorrhage, especially a case with its first symptom,—hemorrhage, resulting from the breaking of some blood vessel. Simply because the patient has hemorrhage is no reason why we should regard that one sign alone and say the case is beyond the incipient stage.

Therefore it seems to me that the sooner we get away from paying too much attention to the lungs themselves, using our stethoscopes too much; and instead, regard the patient as a whole, treating him as a patient and not as someone with a diseased lung, we shall make fewer mistakes, and with fewer mistakes we shall do more to stamp out this disease.

FREDERICK T. LORD, M.D., Boston. It seems a hopeful sign that those who are especially devoting themselves to the study of pulmonary tuberculosis should be the ones who, as this meeting indicates, are calling our attention to pulmonary conditions simulating tuberculosis.

One of the most frequent difficulties is the differentiation of the more subacute or chronic types of the simpler infections from pulmonary tuberculosis. These two groups have in common such symptoms as cough and expectoration, with or without loss of weight, failing sense of well-being and elevation of temperature. There are, however, certain features of the history and physical examination upon which emphasis may be placed in distinguishing the tuberculous from the non-tuberculous cases.

The importance of the family history has been referred to by previous speakers. In this, greater importance should be attached to the opportunity for contagion than alone to a family history of the disease. Some evidence concerning the nature of the process may be afforded by a careful inquiry as to the evolution of the initial symptoms. A cough which begins as an infection in the upper parts of the respiratory tract, in the nose or the throat, and travels downward, is less likely to be of tuberculous origin than a cough, the initial symptoms of which are exclusively intrathoracic. There are, however, many exceptions to this, and we see a considerable number of patients with pulmonary tuberculosis with an initial acute upper-tract infection. In such instances it may be assumed that the milder infection has served to awake a slumbering tuberculous process.

Not all attacks of hemoptysis have an equal

bearing on the clinical diagnosis of tuberculosis. It is especially those attacks which are unpreceded by symptoms or signs of pulmonary or other disease which are to be regarded as of greatest importance in indicating a tuberculous origin.

A primary pleurisy, whether mild or severe, fibrinous or sero-fibrinous, almost invariably indicates that tuberculosis is the underlying condition. Intercostal neuralgia seldom, if ever, exists, and when this diagnosis is made it is usually a poor substitute for a confession of ignorance concerning the true nature of the process.

As regards the site of the disease, involvement of the apex is strong evidence for its tuberculous nature, but there are rare instances of apical invasion, even with cavity formation, which prove to be non-tuberculous at autopsy.

Valuable evidence against tuberculosis is furnished by negative examinations of the sputum for tubercle bacilli in cases in which there is an abundant and purulent sputum. Tubercle bacilli are frequently sought in vain in the early stages of pulmonary tuberculosis, when the expectoration is scanty and mucoid or muco-purulent, and these organisms may be demonstrated only after oftentimes repeated and careful search, but it is uncommon for the case to be one of pulmonary tuberculosis when tubercle bacilli cannot be found after repeated and diligent search in abundant and purulent specimens. The evidence against tuberculosis is still more convincing if at the same time the specimens are positive for elastic tissue and negative for tubercle bacilli.

A good deal has been said this afternoon with reference to chronic influenza. While it is true that infection with influenza bacilli can be demonstrated in a considerable number of patients with cough and expectoration, it seems to me a mistake to regard the presence of the influenza bacillus as an assurance against the tuberculous nature of the pulmonary process. It should be remembered that influenza bacilli are about as frequently present in the sputum of patients with, as in those without, pulmonary tuberculosis. It seems rather of academic interest than of practical importance to decide whether this case or that has influenza bacilli in the sputum. The most important question for decision is whether the patient suffers from tuberculosis or not. If not, then a number of other infections, singly or combined, may be responsible.

Regarding the use of tuberculin subcutaneously in the diagnosis of pulmonary tuberculosis, I have been very loath to use this test except as a last resort in diagnosis, and then only in strict accordance with Koch's original directions as to the way in which it should be used. It is best in adults to give an initial dose of 1/10 of a milligram, take the temperature every two hours for a period of two days, and if the patient fails to react, to follow this injection with successive doses of 1, 3, 5, and 7 or 10 milligrams, similar observations on the temperature being

made for an equal period between each injection. An initial dose of 10 milligrams may be followed by dangerous and even fatal consequences. Any one who has worked experimentally on tuberculous animals with tuberculin will appreciate that a large initial dose gives rise to a very severe local reaction, with marked hyperemia and edema about the site of the infection. I cannot believe that it is desirable to run the danger of inciting a tuberculous process to greater activity by the use of so large an initial dose as 10 milligrams, when a trivial reaction might have been obtained by the use of 1/10 milligram.

I am in agreement with those who believe that syphilis of the lungs in adults is one of the rarest of pulmonary diseases. I do believe, however, that syphilis of the respiratory organs is not so very uncommon in adults as an infection of the tracheo-bronchial region. It is desirable, therefore, if you have a case in which syphilis of the respiratory organs is under consideration, to make, if possible, a bronchoscopic examination to see if there is tracheo-bronchial ulceration, which may suggest the syphilitic nature of the process.

HERBERT C. CLAPP, M.D., Boston: One thing I particularly like in Dr. Hawes' paper is his cheerful admission that one can make mistakes in diagnosis without losing caste. Perhaps no one would baldly claim the opposite, but some, I am sorry to say, seem to give the impression, if not by word, yet by inference, that their dictum is final. Now we all make mistakes in diagnosis, and the only difference between us is as to the number we make. When I meet one of the religious sect professing "Holiness," and claiming that he has lived without committing sin for six months or a year or two, I instinctively thrust my hand into my pocket, and grasp my pocket-book (if there happens, by chance, to be anything in it). Similarly do I feel towards one of those men who is always cocksure in diagnosis. If a man with Dr. Hawes' skill and ability is so modest, why should not the rest of us be so, too?

He has very properly called our attention to the possibility of mistakes when we are dealing, or think we are, with advanced tuberculosis. We all agree, however, that the chance of making a mistake here is a hundred times less than it is when we have a possible early case of the disease. If a medical student or a physician of limited experience could draw an incorrect inference from this paper, he might perhaps think that the number of puzzling cases in advanced disease was greater than Dr. Hawes and some of the rest of us know it to be. I feel sure that in the vast majority of cases of advanced disease it is possible, with the modern means at hand, to make a correct diagnosis without unduly distressing ourselves. Now and then, however, as Dr. Hawes points out, we have an opportunity to exercise all of our discriminative faculties. The great tug of war, as we all admit, comes in the

prompt recognition of incipient tuberculosis. This, of course, is a much more practical question, and on the proper solution of it may depend the lives of innumerable people. On the contrary, in advanced disease the issues of life and death are not so sharply defined, and it is not so important for us to make a correct diagnosis. The only difference in some cases is that they die with the wrong label on. Medicine is a practical science, and when people employ us they have an eye more to results than to exact pathological conditions. This is not an argument for the neglect of careful study of advanced cases. But if our time is limited, it behooves us to spend more of it on early cases, where the results of our efforts may be at times simply marvelous, in contrast to those of thirty or forty years ago, than we do on cases most of which offer little or no hope. It is practicality versus scholasticism.

As to Dr. Hawes' Case No. 1, since he politely allows us to differ from his decision, it seems to me that there are fair grounds for considering this really a case of tuberculosis, largely because on one occasion the report of an experienced pathologist disclosed tubercle bacilli in the sputum. Since Koch's great discovery, announced in 1882, the world has been practically unanimous in considering the tubercle bacillus an incontestable proof of tuberculosis. If, in any given case I have thought otherwise of the diagnosis, on a positive report of a competent pathologist I at once throw up my hands and acknowledge the presence of the disease. At least, if the other evidences are not inconsistent, and they do not seem to be in this case, it is, of course, unnecessary to tell an audience like this that the healthy appearance of a patient, his refusal to die or to be severely sick, or to recover without leaving his work, are proof that he never had tuberculosis. The oft-quoted parable of the sower and the seed, showing that the bacillus flourishes in different individuals with a vigor largely proportionate to its pabulum, militates against this idea. Cases of later-proved undoubted tuberculosis are frequent, where many unsuccessful searches for the bacillus have both preceded and followed a positive finding, and we constantly admonish students of the vast difference in meaning between positive and negative evidence of this kind. Most boards of health caution even physicians against excluding tuberculosis, unless a considerable number of negatives are returned. To throw out this positive evidence of one in fifteen times, Dr. Hawes hints at the possible contamination of the specimen, or the carelessness or dishonesty of the examiner. It seems to me that in a large tuberculosis institution, where the principal reason for the employment of a bacteriologist is the examination of sputum, and where he is presumably honest and capable, such a contamination ought not to be allowed to occur. In the days of the early experimenters on animals with crude tuberculous material, following Villemin's brilliant results in 1865, these

results were apparently for a time negatived by careless contaminations. However, if they were excusable in those days, they are in these days of asepsis inexcusable. If contamination occurs now in one case, what is to prevent its occurring in many others? This admission, once made, would cast suspicion on the reliability of all sputum examinations. And to what point would that bring us? To my mind the microscopic examination in this case far outweighs the subcutaneous tuberculin test, which is supposed to be reliable only in from 80 to 90% of cases, and still less if the case is advanced. Even if non-tuberculous in 1914, couldn't this case have been tuberculous in 1904?

As to the cases of apical influenza simulating tuberculosis, while I admit their occasional occurrence, yet it seems to me that, from a thoroughly practical point of view, the discovery of this fact is likely to do the world at large more harm than good. Well do I remember in the early years of my practice the sweet morsel of comfort which physicians used to roll under their tongues by calling what now lung specialists would call fairly advanced pulmonary tuberculosis, merely cases of apical catarrh or bronchopneumonia. If we did that now, by how much greater would be the slaughter of the innocents?

I dread anything at the apex, and continue to dread it until I see both general and local improvement, whether I am sure of the exact pathological condition or not. If the physician is not worried by such a thing, why should the patient be worried? And after he has received the physician's dictum, what more natural than for the patient to neglect his trouble? Of the two evils, practically it is better to be even unduly alarmed. This does not mean that on the discovery of any apical condition, he should at once be hustled off to the sanatorium, but he should be watched for a while.

If the base of the lung is involved, and there is a differential diagnosis to be made between pulmonary tuberculosis and chronic pneumonia or influenza or carcinoma or sarcoma, primary or secondary, or syphilis or pleurisy, or the exceedingly rare affections, like actinomycosis, e.g. we have another problem. Without attempting to discuss the whole subject, which is a lengthy one, I will merely bring up one point which has been helpful to me.

Of course every physician knows that common pulmonary tuberculosis generally begins at one apex and works downwards, and later attacks the other apex, where it works also downwards, but at a respectful distance behind the first. Very few physicians, however, I imagine, have anything like an accurate idea of how universal this apical beginning is, and how rarely the disease begins at the base. By searching medical literature I never could find many satisfactory statistics on the subject; and so when I had a remarkably fine opportunity, about ten years ago, when I was connected with the State Sanatorium at Rutland, Mass., I decided to investi-

gate carefully the records of a large number of cases of pulmonary tuberculosis with this point in mind. Up to this time the examinations for admission to this institution, which aimed as far as possible at getting incipient cases, had been made entirely by lung specialists, mostly by Dr. Bowditch and myself, and by our assistants in the Sanatorium. With the valuable aid of my assistant, Dr. Lapham, who was then a resident in the Sanatorium, data were collected from 6769 cases, which showed that only about one in 500 could be called truly a basic case, that is, one which had not begun at the apex. We counted a few cases as apical which had apparently begun at the apex of the lower lobe. These results were to me somewhat surprising in going beyond the infrequency which I had previously suspected. They were published in one of our medical journals (*New England Medical Gazette* for August, 1905) and the facts therein contained were made the basis of an editorial in the *New York Medical Record* (August 26, 1905). This great rarity of basic tuberculosis without apical involvement, or with only secondary apical involvement, has been of service to me in the study of some of the problems presented by Dr. Hawes today.

WALTER C. BAILEY, M.D., Boston: Dr. Morse speaks with authority on any subject on which he elects to speak. The general tuberculosis question is difficult enough, but when we come to tuberculosis in children, with all the corollaries of that subject, we find the difficulties increasing.

There are just two points which I would speak of in connection with Dr. Morse's paper. He says: "In round numbers, 10% of all infants have become infected with tuberculosis by the end of the first year of life, and at 16 years not more than 10% have escaped infection. A very small proportion of these children, however, have tuberculous disease. Those that are well and show no symptoms of tuberculous disease are little, if any, worse off than those that have not been infected. In fact, it is probable that in many, if not most instances, they are better off in that they have established a certain immunity to tuberculosis."

That possibly may be true. At least that statement has been made by a great many people, but I believe it has been worked to death. I think it is time to turn over the page and look at the other side. Nobody knows what may happen to the tubercle bacillus when it is inspired by the child. We say that it gets into the gland and the gland protects the body from infection; but, nevertheless, the bacillus may be only sleeping when we believe it to be dead, and in reality is a constant menace.

The tubercle bacillus is a parasite of the human organism, and the interplay of forces is a very complex one, as shown by the formation of the tubercle which the body builds to hem in the bacillus. The fact that the body has accepted

the bacillus as a parasite is enough to startle us out of our equanimity and security, and to make us fear what we say is only an infection. I plead for the early diagnosis of infection, because we cannot tell how many of those infected will become actually diseased. All of us remember when those who specialized in tuberculosis were blamed for making a diagnosis of tuberculosis without the presence of the tubercle bacillus. Nowadays we criticize those who wait for demonstration of tubercle bacilli before making a diagnosis and instituting treatment. The same applies to children. If we wait for every sign in order to be sure, it will be too late. In that respect Dr. Morse says: "The demonstration of glandular enlargement, whatever its situation, even if other causes than tuberculosis for the enlargement can be excluded, does not, however, prove that the condition is one of tuberculous disease. It merely shows that there has been a tuberculous infection at some time. The condition is not one of disease unless other tissues are involved or the glandular enlargement is associated with symptoms of disease, such as fever, malaise, debility, loss of weight, and so on."

I personally, if it were my child, would rather have a diagnosis made, even though it was a wrong one, of suspected tuberculosis, so that proper treatment could be begun, than wait until that child has fever, malaise, debility and loss of weight. If physicians and parents can be trained to appreciate how widespread is childhood infection we shall have better care of children in the home and nothing but open-air schools. It is simply using common sense to give the children the best chance they can have to get rid of the infection and prevent the lighting up of the disease when they grow to young adult life.

You will see that my remarks point to the relation of childhood infection to adult pulmonary tuberculosis. That, of course, was not Dr. Morse's point of view, so I am not criticizing him adversely in his attitude.

Let us do something to increase this tentative diagnosis of infection, and by reporting it get figures and see what the true situation is. I believe this attitude to be most humane and intelligent.

FRITZ B. TALBOT, M.D., Boston: What Dr. Morse said in his paper is about what I feel about tuberculosis in childhood. I think that in discussing tuberculosis in childhood we forget that physiologically the child is not the same as the adult. When a person is once an adult he is always so, while the baby or infant is quite different. Infancy is the period of greatest growth and development, and may be characterized as a period of change; as the child nears adult life growth becomes less and physiological changes diminish.

Tuberculosis in the infant is primarily a disease of the glands, as Dr. Morse says. Tuberculosis in the adult is not a disease primarily of the glands, but of the organs. The disease has one

characteristic in the infant and another in the adult, and during childhood, the stage of transition, we have combinations of both types, depending on the age of the individual. For this reason a knowledge of the physiology and normal attributes of the infant is necessary to understand tuberculosis at all ages. My own personal opinion is that any positive skin tuberculin reaction in an infant under a year is not tuberculous infection, but tuberculous disease, and that nearly all of them die.

H. D. CHADWICK, M.D., Superintendent Westfield State Sanatorium: It is very unfortunate that we apply the term tuberculosis to a person in the last stages of disease and also to the child showing only bronchial gland infection. My assistant, Dr. Morgan, last fall went over the histories of about 150 children between the ages of 3 and 14 years. We recorded the symptoms of these patients as they were given to us, chiefly through correspondence. We sent the parents a blank on which certain questions were asked in regard to the onset of the disease and the symptoms which the child had had. In tabulating those symptoms interesting things have been brought out. In making a diagnosis of tuberculous disease it is necessary to consider three things,—symptoms, evidence of infection and physical signs. Of the symptoms tabulated in these 150 cases we found that the most frequent one was cough. That question was answered in 132 cases, and was positive in 99. The next in frequency was weakness; 70 of the group were said to have weakness; 62 had loss of appetite. I notice that Dr. Morse said night sweats were unusual in tuberculous disease in childhood. These answers do not bear out that statement. Out of 129 that replied to this question, 49 were reported to have had night sweats; 45 had shortness of breath and 44 had fever.

As Dr. Morse has said, cough does not mean tuberculosis, because it is caused by so many abnormal pharyngeal conditions, enlarged tonsils and adenoids, for example, that it is not a distinctive symptom. The next most prominent sign is weakness. To my mind that is the most important symptom in making a diagnosis of active tuberculosis, because it is usually present in a very early stage, both in adults and in children. Loss of appetite is evidence of toxemia, and, of course, tends to further the feeling of weakness. I recently made a statement which my friend, Dr. Hawes, took exception to,—that any child who had evidence of bronchial gland infection as made out by physical examination, and was unduly fatigued, showed marked weakness ("morning tire," as I expressed it) was probably infected with tuberculosis. There are very few children who are tired in the morning unless they have some toxemia. It is especially prominent in tuberculous infection. Children with an active tuberculous focus will have the desire to play, but not the requisite energy. The attempt to keep up with normal children makes

them tired and they show this strain by being nervous and irritable. Most of these children show interseptular dulness. Therefore, I think that a child who is unduly fatigued, has interseptular dulness, a positive von Pirquet test, and no other obvious cause, should be considered as having tuberculous disease and treated as such.

In regard to the mode of onset: These parents answered that in 38 cough was the first symptom; 22 of them answered that they were "run down," which is another term for weakness and loss of appetite; in 18 the diagnosis was made on physical examination of children in families where there had been an active case of pulmonary tuberculosis. In making routine examinations in the schools and in the families of patients where there have been fatal cases of tuberculosis, it is especially necessary to consider the distinction between infection and disease. Many of the children in whom a positive diagnosis was made had physical signs, but the characteristic symptoms were absent. They need not have been sent to a sanatorium if they had had a proper home in which to live. Of course that must be taken into consideration in prescribing suitable treatment. Are children to be sent away from home because they are only infected with tuberculosis? Not necessarily, because proper home care for those children is just as good as sanatorium treatment. But many of the children who go to dispensaries come from such poor homes that they cannot overcome their infection and would soon become active cases of disease if they were not sent away.

In considering the evidence of infection, the family history is most important. In 131 cases there were 86 with a positive family history. It is interesting to analyze that family history. We find that the diseased mother is the most dangerous member of the family as far as infection is concerned; a diseased father comes next; then in this series a diseased sister to other sisters, and a diseased brother to other brothers.

Of course we all realize the value of the von Pirquet test in children as indicating infection. The subcutaneous test I rarely use and only on adults. I think it is a hazardous thing to give a test dose of 5 or 10 mg. of tuberculin. I always begin with $\frac{1}{2}$ mg. and then increase, if no reaction, to 1, 3, 5, and 10 mg.

In this series of 145 children, the sputum was positive in 12%. That is a larger percentage than shown by those now in the Sanatorium. The patients who were admitted in the early period of our taking children at Westfield were more advanced. At the present time in a ward of 80 children under 12 years of age, only five have positive sputum.

Considering physical signs, we found in a series of 152 children that the weight of 104 was below normal, and were surprised to find that 48, or about one-third, were either normal, or above normal. We have a general impression that a child infected with tuberculosis is a puny,

pale, undersized child, but in 31% of these cases the reverse is true.

When we first began to examine these tuberculous children I felt that auscultation was quite important. The more examinations I do the more I depend on percussion. It is rather an unusual thing to find râles in children. One reason for that is that you cannot induce them to cough at the right time to bring them out. Percussion, on the other hand, is very important. Impaired resonance has the same relative value as an x-ray shadow or the d'Espine sign in indicating thickening of the lung or enlarged bronchial glands.

Several of the children sent to the sanatorium after the diagnosis has been made by x-ray examination, showed definite dulness between the scapulae. I cannot see where any additional evidence was obtained by the x-ray examination. Theoretically, impaired resonance should be brought out before a diseased area is dense enough to cause a shadow.

Percussion of children should be done with the patient standing, as changes in resonance can be elicited more clearly in that position. For this reason it is especially important whenever there is occasion to compare records of examinations made at intervals or by different physicians, that the patient be placed always in the same relative position, as otherwise the findings will vary greatly.

The D'Espine sign, I think, is of the same value, no more or less, than impaired resonance, and not so frequently found. The level at which the normal D'Espine sign is found varies more with the development than with the age of the child. A tall child will show a lower D'Espine sign than a short, chunky built child of the same age, and this fact must be taken into consideration.

One word about classification. As affecting prognosis, I think it is of minor importance in a given patient as to whether a case is called incipient, moderately advanced or advanced, as compared with the significance of the symptoms. The symptoms are the only measure we have of the resistance of the patient to the infecting organism. Upon that resistance depends the amount of arrest that can be obtained and the degree of future usefulness of the patient.

FRANCIS P. McCARTHY, M.D., Boston: I had an opportunity while at Mattapan for two years of seeing cases clinically and also the post-mortem examinations. I might say here that life in a tuberculosis institution for advanced cases is not very exciting. You come across quite a few hundred cases of advanced tuberculosis in succession, and from a clinical standpoint, to examine every day a large series of advanced cases of tuberculosis is not particularly interesting. When we met an occasional non-tuberculous case at the hospital it was more or less of a treat to work over this case. It was my good fortune while at Mattapan to come across quite a series of non-tuberculous cases, which

made the service broader, not only to the resident physician, but also to the house officers. I might say that it is very difficult to make it interesting for the recent graduate from the medical school to come into a hospital for advanced tuberculosis and have him stay there for a period of six months. You must show him something besides tuberculosis. Fortunately, at Mattapan we were able to get an occasional case of non-tuberculous disease.

These non-tuberculous cases sent in as advanced tuberculosis were invariably picked up at the patient's home, referred by a private physician. They did not come through the out-patient department of the Consumptives' Hospital. Many of these cases were post-pneumonic cases, with signs in the chest, râles, dulness, etc.; others were cardiac cases with passive congestion. The physician seeing the case for the first time could not rule out tuberculosis, and makes a mistake in not following it up a little longer, as it only takes but a very few days to clear up those cases. The cancer cases are a little more difficult to diagnose except after more prolonged observation. When we meet a case of suspected carcinoma we hold it for closer study, and if possible get an autopsy to settle definitely the diagnosis.

The series of 23 non-tuberculous autopsies out of a total of 130 is rather high from a non-tuberculous standpoint, but this is explained possibly by the fact that we tried harder to get autopsies in those cases. We had one case of actinomycosis of the lung which was not diagnosed clinically, although we did rule out tuberculosis.

Syphilis of the lung is, to my mind, one of the rarest conditions known. Looking up the literature, it is very difficult to find any definite pathology on syphilis of the lung. In an institution like Long Island, where they have been handling tuberculosis and syphilis for years, they do not find cases of syphilis of the lung at autopsy. In a series of something like 3000 autopsies in Panama, held in the last ten years, there has not been one single case.

One speaker said it often takes two to four months to clear up a diagnosis as to the question of tuberculosis in a questionable case, in an institution. I heartily agree with him.

VINCENT Y. BOWDITCH, M.D., Boston: I want to make one or two remarks about the "basic processes" which Dr. Hawes has spoken of. They remind me of the cases which came to my attention as a student and in the early years of practice, just before the discovery of the tubercle bacillus. The name applied to such cases was often "anomalous tuberculosis," a term which I confess I never fully understood, although it implied something that differed from the usual forms of pulmonary tuberculosis, and was apt to be favorable in result. It was usually cited as something distinct from the apical forms. Whether these forms were of some other infection, like gripe, of course it would be impossible to say.

I note with great satisfaction, this afternoon, the conservative tone taken by the speakers, which is similar to that of the experts on x-ray in pulmonary disease. In all my recent conversations with those who stand pre-eminent in that department, I have noted that they often speak of "shadows which could not be said to be positively indicative of tuberculosis." I am led to speak of this from my own experience in cases where hasty conclusions have been drawn by those who are tyros in x-ray examinations. To cite a concrete example: A young lady came to me in great agitation because she had been told several weeks before by a physician that she had "shadows at the tops of her lungs," and that she probably had tuberculosis. She had not a single symptom of that disease other than a pain under the scapula which had troubled her for some time. On physical examination there was absolutely nothing to be found to confirm the diagnosis of tuberculosis. From the history I believed it to be one of those cases of pressure upon some intercostal nerve, and I sent her to Dr. Goldthwait, who in two weeks relieved her of the pain by means of a slight support on the chest. She was relieved immensely, both mentally and physically, and has never complained of anything since and has been perfectly well. I could give other instances of hasty diagnosis without sufficient clinical examination, but the one cited will serve to illustrate my point.

As to mistakes in diagnosis, we must all admit that we are neither omniscient nor infallible. I recall one case in the Sharon Sanatorium, where all the symptoms of the woman were those of a beginning apical tuberculosis: malaise, cough without much expectoration, with occasional slight hemoptysis, and even fever. We thought it was a case of incipient tuberculosis. After a time, her symptoms had a peculiar aspect. She suddenly began to show signs of marked dulness all over the right side of the chest. Great dyspnea came on, relieved only slightly by aspiration of bloody fluid, which made us change our diagnosis. She finally died suddenly of some cerebral trouble. Upon examination, we found malignant disease of the lung and pleura. All of her symptoms previously had been indicative of tubercular disease.

I agree with Dr. Hawes in regard to the great importance of close observation of patients in whom symptoms are of doubtful origin. Possibly I should differ somewhat from him as to the importance of sending them immediately to a sanatorium. I feel very strongly that if a person is in the class of life where he cannot look after himself as well at home, it is a great deal better to give him the benefit of the doubt and send him immediately to some sanatorium for observation. In my opinion, much less harm is likely to come from such procedure than from the possibility of losing valuable time should positive proof of the disease be found later.

Original Articles.

SHRAPNEL BULLET IN BLADDER: REPORT OF A CASE.

BY D. PEARCE PENHALLOW, M.D., BOSTON.

[From the American Women's War Hospital, Paignton, South Devon, England.]

THE more one sees of war-time surgery the more strongly is the fact impressed upon one that oftentimes bullets will do the most unexpected things as regards their course, and at the same time will do comparatively little damage.

The following case illustrates these points very well and is reported in the hope that it may be of interest.

W. R., aged 20, sapper, was wounded at Ypres on May 26, 1915, by a shrapnel bullet from a shell which burst about fifty yards from where he was standing. Following his being wounded he walked a distance of six hundred yards to the dressing station, where the wound was dressed, and then two hundred yards farther to the ambulance. In the ambulance he was taken to a general hospital and kept for four days; then sent to England, where he was admitted to my ward at the American Women's War Hospital on June 1, 1915, with the following history and examination:

Well developed and nourished youth; able to walk without discomfort. Temperature and pulse normal. In median line of back at lower end of sacrum is a small penetrating wound $\frac{1}{2}$ in. in di-



FIG. 1.

Shows wound of entrance one-fourth inch in diameter surrounded by area of slightly inflamed tissue. Wound discharging very slight amount of sero-purulent material at time of entrance.

ameter (Fig. 1). About this wound is a small area which is somewhat reddened. No pain or tenderness on palpation or when he walks. No discharge from wound save very slight amount of sero-purulent exudate. No sinus made out. Patient feels perfectly well, but states that he has difficulty in urinating, especially when he stands erect. At such times the stream will start normally and will then be checked suddenly and this is associated with considerable pain. When he lies on his side he has no difficulty in urinating. He also states that when he

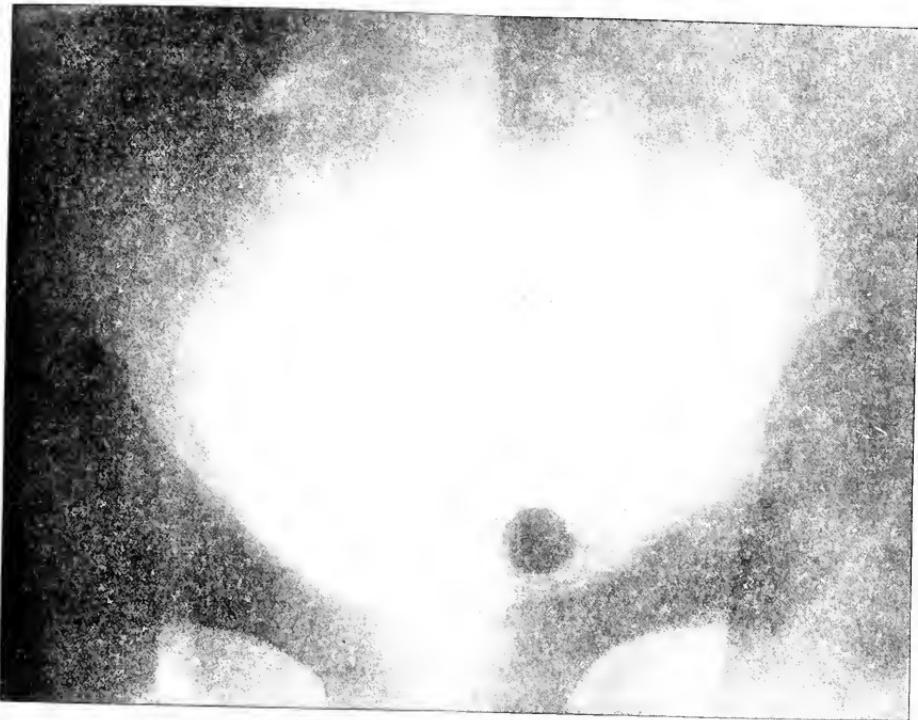
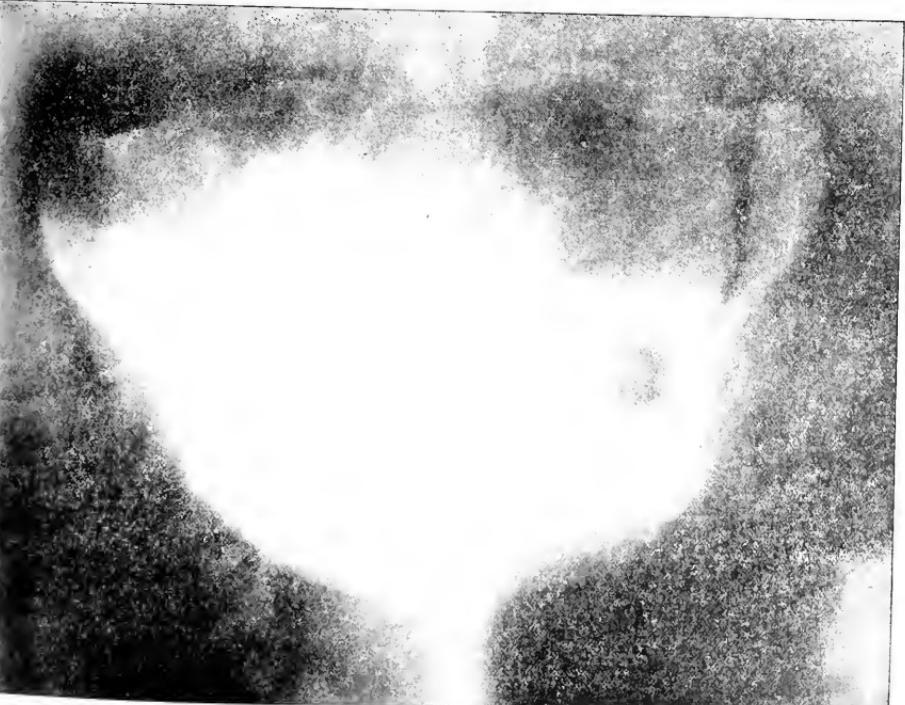


Fig. 1
Anteroposterior view, patient lying on his back, showing shield bullet just above and to the left of the symphysis pubis.



is lying down and turns over he can feel something moving about in his bladder.

For the first two days after being wounded, urine was slightly red in color and the first bowel movement was slightly streaked with blood, but there is now no macroscopic blood in urine or stools.

Rectal Examination reveals a firm sinus tract adherent to rectum, passing around to the left and then straight towards the bladder. No opening in rectum; no tenderness and no masses felt.

Urine Examination shows normal urine save for a slight amount of blood and pus.

Cystoscopic Examination shows a rounded mass lying just to one side of urethra. Mass moves when patient turns. Wound in bladder wall not made out.

Stone searcher passed into bladder shows the presence of a metallic foreign body.

X-ray Examination taken in different planes shows a foreign body in bladder region. (Figs. 2 and 3.)

June 29, 1915, ether and operation. Suprapubic cystotomy. Bladder opened through a small incision and bullet located and removed by bullet forceps. Wound in bladder closed tightly. Small drain to prevesical space. Constant drainage.

The foreign body removed was a lead ball $\frac{1}{2}$ in. in diameter, and at time of removal was becoming encrusted in several places with salts.

Following the operation patient had an uneventful convalescence and the wound was entirely healed in two weeks. Since that time patient has felt well; he can pass urine without any further trouble and will soon be able to return again to duty.

Medical Progress.

REPORT ON OBSTETRICS.

BY ROBERT L. DE NORMANDIE, M.D., BOSTON,

AND

JOHN B. SWIFT, JR., M.D., BOSTON.

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CAESAREAN SECTION IN BREECH PRESENTATIONS.—RUPTURE OF A CAESAREAN SCAR.—BREAST FEEDING.—ANALYSIS OF 679 CASES OF ABORTION.—SERUM STUDIES IN PREGNANCY.—EFFECT OF PUBIOTOMY UPON THE COURSE OF SUBSEQUENT LABORS.—NITROUS OXID ANALGESIA IN OBSTETRICS.

CAESAREAN SECTION IN BREECH PRESENTATION.

THREE papers have recently appeared where the authors favored Caesarean section in primiparous breech presentation.

Shearer¹ reviews the possible causes of breech presentations and suggests that one cause has not previously been noted. He thinks that when long cords are present and become wound about the neck, making a relatively short cord, the normal influence of gravity which causes a head presentation is overcome with the resulting breech presentation. He suggests a Caesarean section in deformities of the pelvis

and when large babies occur, but he does not come out strongly for Caesarean section in all primiparous breech cases.

Williams,² on the other hand, believes that because of a probable fetal mortality of from ten to thirty per cent, combined with severe injuries to the maternal soft parts an elective Caesarean section in primiparous breech cases should be performed.

Bowen³ reports a Caesarean section in a primiparous breech. The patient was forty years old and he allowed her to go in labor for twenty hours with no appreciable progress and then performed a Caesarean section. He obtained a living baby and the mother made an excellent convalescence.

Williams reports two cases where he did a Caesarean for a primiparous breech. They were both elective Caesareans, one made a normal convalescence and the other had a low grade uterine sepsis but eventually made a good recovery.

Williams says that when a breech occurs in a primipara the cause is either a disproportion between the fetal head and the pelvic brim or a disproportion between the fetus and the shape or size of the uterus. That these causes, one or both, may be present in a breech presentation cannot be denied, neither can it be proved that these two causes are the only reasons for a breech presentation. Shearer's suggestion of the coiling of the cord about the neck may prove to be a cause. That these causes that Williams suggests are not always present must be admitted, for all physicians have seen cases where there was no disproportion and the patient has successfully been delivered of a living child.

These three papers show the trend of modern obstetrics, the widening of the indications for performing Caesarean section, but in connection with the following abstract it is clear that Caesarean section is not to be advised lightly and as a very simple procedure.

RUPTURE OF PREGNANT UTERUS THROUGH THE SCAR OF A FORMER CAESAREAN SECTION.

Walls⁴ reports two cases where rupture of the pregnant uterus took place through the scar of a former Caesarean. The first case was seven months advanced in her fourth pregnancy, having had three previously successful Caesarean sections. Laparotomy was done, but the patient did not rally.

The second case was in a patient within ten days of term of her second pregnancy. Signs of accidental bleeding occurred. Walls opened the abdomen and found the previous Caesarean scar was wide and very thin, with blood oozing from the lower end. A dead baby was removed through the incision and a supravaginal hysterectomy done. The patient made a good recovery.

Shaw⁵ reports the third rupture. The patient

was within a week of full term in her second pregnancy when she was seized with a sudden sharp, very severe abdominal pain while in bed and asleep. Within a few hours the abdomen was opened and it was found that the whole of the previous scar had opened up. The dead child was delivered and the uterus removed by supravaginal hysterectomy.

BREAST FEEDING.

Waller,⁵ in an excellent article on breast feeding brings out many interesting points in the physiology of the breast. He feels that it is the lack of accurate knowledge on the subject of lactation that has given bottle feeding its chief impetus.

Waller divides his article into three parts: (1) the periodicity in the secretion of the milk, (2) the size of the meals, and (3) the infant's appetite.

Waller feels that the periodicity of the secretion of the milk is most important and that the inability to nurse is due in a large measure to a failure to observe this characteristic. In primiparae Waller says it is not always easy to demonstrate this periodicity until nursing has gone on three or four weeks, but in multiparae it appears much earlier. This periodicity is established by the regular stimulation of suckling with a sufficient interval between the infant's meals. The mother becomes aware of a sensation in the breasts which is variously described as a rushing, tearing or painful stabbing, known as the "draught," and it is experienced as soon as the child's mouth is applied to the nipple. Waller feels that the maintenance of this so-called "draught" is, perhaps, the surest sign that breast feeding has been normally carried out, and that when the converse is present, suspicion should be roused that the nursing regime is not satisfactory.

Too frequent suckling is the commonest cause of failure of nursing. Waller says that the only basis for the prevalence of so unexceptionally bad teaching is the anatomical view that the stomach of a newborn child is so small that it needs frequent refilling. Because of this too frequent nursing the infant becomes restless and dissatisfied, cries at the breast and even refuses to suckle, with the weight remaining stationary. The result is that supplementary feedings are begun, and comparative peace following, the parents are at once convinced that the milk supply was insufficient.

Waller shows charts in his article to bear out this contention that on fewer nursings infants gain better. He shows from tables that the total amount of milk obtained increases as the number of meals diminishes. With the increasing of the interval Waller admits that the meals obtained become far larger than is compatible with the view usually held about the gastric capacity. But he also shows that babies nursed as above outlined have no objection to waiting

many hours for their food, show no signs of digestive disturbances, gain weight rapidly and develop strongly. From these facts Waller believes six meals are better than ten and that when the infant is six or eight weeks old five or four will be sufficient.

ANALYSIS OF 679 CASES OF ABORTION.

Lackner⁶ analyzes 679 cases of abortion which occurred during the period from January, 1909, to January, 1913, at the Michael Reese Hospital in Chicago. These cases included all types of abortion. The causes of these abortions were difficult in many cases to determine. In 100 consecutive cases the Wassermann test was done, and only in four cases was the reaction positive. Lackner's findings in this respect corresponded closely to Trinchesa's, who says that syphilis plays practically no rôle in abortions during the first four months of pregnancy.

There were four deaths in the series of 679 cases, or a percentage of 0.06. Of these four cases one was treated conservatively and three actively, but all were brought to the hospital moribund.

The treatment as carried out in these cases was as follows: In threatening abortion with less than one finger dilatation and only slight bleeding, absolute rest in bed. No vaginal examination except the first one and no brisk catharsis. Fifteen to twenty grains of sodium bromide were given four to six times a day. A hypodermic of morphine sulphate grains 1/4 and atropine sulphate grains 1/150 was given (whether this was repeated is not stated in the article). These patients were kept in bed two weeks and then sent home, but as many of these patients came from the very poor laboring class they returned in a few weeks with a diagnosis of incomplete or inevitable abortion. (It has been our custom in such cases to empty the uterus, for it has been conclusively shown that with women of this class it is impossible for them to have the rest which is necessary in order that they may go to a successful issue. This series of cases again demonstrates the advisability of our course.)

The preparation of the patient was as follows: the external genitals were shaved and scrubbed. The vagina was cleansed with green soap and water and irrigated with 1:5000 bichloride of mercury solution. A tent was then inserted and a cotton pledge was placed posteriorly, laterally and anteriorly to the cervix to keep the tent in position. Tents were kept in the uterine cavity twenty-four to thirty-six hours and no complications followed their use. After the cervix had been dilated sufficiently a finger curettage was done. The forefinger of one hand was placed in the uterus and the other hand grasped the uterus through the abdominal wall and guided it over the finger within the uterus. The side of the finger rather than the tip was used to free the placental tissue, which

was removed by the placental forceps. The dull curette was used only when the placental tissue could not be freed digitally. The cavity of the uterus when empty was irrigated with $\frac{1}{2}\%$ iodine solution. The patient was kept elevated in bed for three days and given fifteen drops of ergot and hydrastis three times a day for two days. Bowels moved by daily enema. If there were no complications the patient was allowed to get out of bed on the fourth day.

Smears and cultures, both anaerobic and aerobic, were taken in fifty consecutive cases, but they showed no constant findings and are not of great value. The article ends with twenty-eight references to the subject under discussion.

SERUM STUDIES IN PREGNANCY.

The authors,⁷ considering that the mobilization of proteolytic ferments has been proved to occur during pregnancy, undertook an investigation to determine first, if extracts of placenta injected intraeutaneously or applied to the abraded skin of pregnant women would be followed by the train of phenomena generally recognized as a local anaphylactic or allergic reaction and ascribed to the action of a proteotoxin; and second, if such a reaction occurs, whether it is due to a specific or general ferment and under what circumstances it would occur.

They review the question of the relation of anaphylaxis to labor as studied experimentally first by Sauerbruch and Heyde, and later by a further series of investigators. A thorough description of the preparation of their extracts is given, the placental extract being given the name placentin, and a control extract made from beef kidney and from human male and female kidneys called nephrin. They found it necessary to change the method of preparing the extracts a number of times, due to the fact that they were getting local reactions from the solutions which they used to carry the extracts. Their experiments are carefully detailed, and at the end of the article they discuss their findings as follows:—

"Without at this time entering upon a general discussion of the mechanism of anaphylaxis and the nature of the substrat in anaphylatoxin production or the action of the ferments in the serum of pregnancy in this process, the results of this study indicate that during pregnancy there is an increase of a general proteolytic ferment rather than a production of a ferment specific for placental protein alone. Whether this increased tryptic power of the serum in pregnancy is due to a simple increase of normal tryptic ferment or to the production of new proteolytic and amboceptor-like bodies of a general nature capable of attacking not only the proteids of placental, but of other bodies as well, is being studied and will be reported upon in a subsequent communication. At present it may be stated that these ferments have several of the characters of amboceptors, and their lack

of specificity is comparable to the lack of specificity of the cytotoxins in general.

"While we have naturally hesitated to report upon these local skin reactions in pregnant and puerperal women until a relatively large number was studied, in view of the contradictory results obtained by others, we feel justified in concluding that the reactions were anaphylactic in nature and due to an anaphylotoxin produced by the action of general ferments upon a protein substrat.

"We have not been primarily interested in the question of the practical diagnostic value of a skin test for pregnancy, and have merely recorded the results as observed. We do not believe at present that this reaction possesses a practical value in diagnosis, certainly not among women who have borne children."

SERUM STUDIES IN PREGNANCY. II. A STUDY OF THE SPECIFICITY OF THE FERMENTS IN PREGNANCY AND THE MECHANISM OF THE ABDERHALDEN REACTION.

The objects of this investigation as undertaken by the authors,⁸ were as follows:—

First, to determine by means of intracutaneous and intravenous injections of the material if proteotoxins are produced during the Abderhalden reaction. Second, to study the specificity of the ferments in pregnancy by the same method. Third, to study the mechanism of the reaction, and particularly the source of the protein matrix. Fourth, to study the relation of a complement to the proteolytic ferments of pregnancy.

As in the first article, the authors give a very careful and comprehensive description of their technic, both in the preparation of the various sera and their methods of using. Both animal and human experiments were made. The authors' discussion of their experiments is as follows:—

"According to their experiments pregnancy serum contains proteolytic ferments which, when rendered active (*in vitro*) produced toxic substances capable of increasing the local and general reaction analogous to those observed by Vaughan, Friedberger and others and regarded as anaphylactic in nature. These observations support the views expressed in our previous communications concerning the probably anaphylactic nature of the reaction following the intracutaneous reaction of placentin and nephrin, although these occurred to some extent in non-pregnant women and in men and in this matter lacked absolute specificity. It is highly probable that the process of proteotoxin formation in the skin (*in vivo*) is identical with that occurring in the test tubes (*in vitro*).

"Our experiments also suggest that in pregnancy serum there are two sets of proteolytic ferments, one composed of normal non-specific ferments and the second of a more or less specific ferment. While the latter may not be

specific in the sense of absolute digestive power for placental proteid alone, yet it appears to be rendered active in the presence of placental tissue to a much lesser extent, or not at all, by other human tissues and those of lower animals, and practically not at all by inorganic substances.

"Our experiments, however, show that inorganic substances, as kaolin, are capable of releasing the normal tryptic activity of a serum, probably through the absorption of anti-ferment, followed by the digestion of serum protein. Our work indicates that this action is non-specific and the result of the release of normal proteolytic ferments, whereas the activity of the specific ferments in pregnancy serum is best in evidence in the presence of placental tissue.

"It is probable, therefore, that the Abderhalden reaction is an anaphylactic reaction (*in vitro*) in so far as its mechanism is concerned, for the reason that normal human sera contain variable amounts of proteolytic ferments. It is reasonable to expect that the intracutaneous injection of protein material into the skin may in a small percentage of persons be followed by a local reaction due to non-specific proteotoxin production.

"In view, however, of the high specificity of anaphylactic reaction one cannot explain the mechanism of anaphylaxis and production of anaphylatoxin upon simple absorption of anti-ferments alone, without the assumption at least that the specific anti-bodies or ferments are produced after the parenteral introduction of proteins and that these are released through absorption of the anti-ferments by means of the specific protein antigen alone.

"With the Abderhalden reaction as now conducted it seems impossible to avoid a certain percentage of non-specific reactions due to the presence of non-specific proteolytic ferments. A means of removing these preliminary to the main test for specific ferments will probably render the reaction more specific within wider quantitative limits.

"While numerous investigations indicate that the protein matrix is the serum protein itself, we cannot at present subscribe to this view and exclude the tissue substrat entirely as a second matrix; rather, we are still inclined to believe that, in addition to digestion of serum protein, the tissue substratum is likewise attacked and adds to the production of proteotoxic substance."

THE EFFECT OF PUBIOTOMY UPON THE COURSE OF SUBSEQUENT LABORS.

Williams⁹ reports a series of forty-three pubiotomies upon forty women without a maternal death. With one exception he used the semi-subcutaneous method of Doederlein, and the operation has not been resorted to until a prolonged test of the second stage has demonstrated the impossibility of spontaneous deliv-

ery. The operation has been immediately followed by the delivery of the child. The operation has been restricted to patients presenting moderate degrees of contraction, the smallest pelvis having a conjugata vera of 7 cm. One-half of the cases had vaginal tears which communicated with the pubiotomy wound. No complications occurred, and Williams does not regard them as any more serious than ordinary perineal tears, if repaired at once. The bladder was injured twice and was immediately repaired, one case healing readily and the other requiring subsequent repair. The after-care is very simple, according to Williams. He expects and hopes for fibrous union between the cut ends of the bone. Consequently no attempt at immobilization of the pelvis is made, a simple four-inch strip of adhesive plaster encircles the pelvis at the level of the trochanters and the patient is placed on a Bradford frame. Injury to the sacro-iliac joint can always be prevented if the conjugata vera does not fall below 7 cm. and if the cut ends of the bone are not allowed to gape more than 5 cm. during delivery. The patients usually begin to walk early in the third week and are discharged one week later. All of his patients within a few months were walking and working as well as before, with one exception,—a woman who had suffered from relaxation of the sacro-iliac joint before the operation. All of the bone wounds, with one doubtful exception, healed by fibrous union, and a definite excursion of the two ends of the pubic bone can be felt with every step. This has in no way interfered with locomotion and has caused no pain. Twenty of the forty women have subsequently been delivered and have had twenty-seven full term and three premature deliveries. Williams states that following pubiotomy the increase in the size of the pelvis occurs more often in the transverse diameter of the outlet than in the conjugata vera. Six cases showed an enlargement of the conjugata vera, but in two only did it amount to so much as one cm. Eleven cases showed an increase in the transverse diameter of the outlet varying from one to three cm. Four cases showed a radical change in the pelvis as a result of the operation. A simple flat pelvis, a generally contracted pelvis, and a typical funnel pelvis became normal, and a generally contracted funnel pelvis was converted into a simple justo-minor one. Two other cases that have not been delivered again also show a marked change in their type of pelvis. Williams regards these observations as of the greatest importance.

Out of this series twelve women had one, six women had two, and two women three labors after the initial pubiotomy. Considered in another way, ten women had twelve spontaneous labors, while the other ten had eighteen labors which ended as follows: eleven Caesarean sections, three repeated pubiotomies, one spontaneous full term, and three premature labors. Four children were lost out of the twenty orig-

inal pubiotomies, but of the thirty subsequent children all but the premature ones were discharged from the hospital well. Williams believes that of the ten women who had spontaneous labors afterwards the pelvis of eight were affected by the original pubiotomy.

In the second series of ten women with eighteen subsequent labors there was no evidence that any permanent benefit followed pubiotomy. None of the pelvis became larger nor were the ensuing labors any easier. Only one of the fourteen full-term children was born spontaneously while the rest were delivered by Caesarean section or repeated pubiotomy. In Williams' series primary pubiotomy was done upon eleven primiparae and nine multiparae, who had eighteen and twelve subsequent labors respectively. The primiparae had four spontaneous and eleven operative labors, as compared with nine spontaneous and three operative labors, respectively, in the multiparae. Apparently this discrepancy was entirely in favor of the multiparous women.

Williams has learned that in labor complicated by a funnel pelvis pubiotomy is an ideal operation and in young women is preferable to any other procedure. He permits each patient to go into labor, and when it has come to a standstill he applies the Gigli saw prophylactically before applying forceps. This has two advantages: first, it prevents too powerful traction on the head to demonstrate that delivery by forceps is impossible; and second, it tends towards greater conservatism by preventing the performance of primary pubiotomy solely upon indications furnished by pelvimetry. In the funnel shaped type of pelvis in young primiparae, Williams believes that pubiotomy is greatly superior to Caesarean section, since no matter how successful the latter may be it only relieves the immediate difficulty and must be repeated in each subsequent labor, whereas pubiotomy may permit spontaneous labors later. Williams, however, believes that in elderly primiparae and in multiparae with previous disastrous obstetrical experience an elective Caesarean section is the better operation. In considering the indications for the operations, Williams divides the patients into four classes, according to the time and the condition in which they come into the hands of the obstetrician, assuming that the labor is complicated by moderate degrees of pelvic contraction: (a) Patients under observation during pregnancy or at the onset of labor. (b) Patients admitted late in labor, but who are otherwise in good condition. (c) Patients admitted late in labor who have already been subjected to attempt at delivery or who are exhausted or infected. (d) Patients admitted late in labor with child already dead. With the first type of ease, if there is considerable doubt in the mind of the operator as to the advisability of Caesarean section Williams believes that the patients should be allowed to go in labor, and be given a test of several hours in the second

stage. Usually the child is born spontaneously but occasionally the expected engagement and descent failed to occur. Here, in place of a late Caesarean section, Williams would resort to pubiotomy, as its mortality at this time is minimal and the chances for the child are excellent. In this class of cases he states that pubiotomy is a makeshift operation which has become necessitated and justified by an error in prognosis. He does not believe that early Caesarean section and pubiotomy are competitive operations, but he does believe that a number of patients may be saved Caesarean section if the possibility of pubiotomy is remembered if their labor does no progress as it should. The same argument holds good in his second class of case. The third type of ease offers the greatest possibility for errors of judgment. Conservative Caesarean section is too dangerous to be seriously considered. The choice lies between Caesarean section followed by hysterectomy, or pubiotomy. If Williams feels reasonably sure that the patient has not been infected, pubiotomy is done and the child-bearing function preserved. On the other hand, if there is a strong suspicion of sepsis either craniotomy or Caesarean section followed by hysterectomy is chosen, depending somewhat on the patient's age. In the last type of case craniotomy is the only operation indicated.

Williams' conclusions are as follows:—

(1) In somewhat more than one-third of our cases, particularly the funnel pelvis, pubiotomy has resulted in sufficient enlargement of the pelvis to permit subsequent spontaneous labor.

(2) My experience has taught me great conservatism in the employment of pubiotomy which should not be regarded as an elective operation, except in funnel pelvis in young women.

(3) In contractions of the superior strait, our ideal should be to differentiate the patients into those requiring Caesarean section at the onset of labor, and those in whom a spontaneous outcome may reasonably be expected. Pubiotomy should be employed in the latter only when failure of the head to engage after a prolonged second stage has demonstrated that the prognosis was erroneous.

(4) Pubiotomy does not compete with elective Caesarean section at the onset of labor, but is far safer than conservative Caesarean section late in the second stage.

(5) In moderate degrees of contraction of the pelvic inlet the great field for pubiotomy in patients who have not been seen until late in labor, or who have been examined by those whose technic is questionable. In such circumstances, conservative Caesarean section is too dangerous, so that the choice lies between pubiotomy, Caesarean section followed by removal of the uterus, or craniotomy upon the living child. If definite infection is present, pubiotomy is contraindicated.

(6) In version or breech extraction where there is moderate disproportion, prophylactic laying of the Gigli saw adds greatly to the

peace of mind of the operator, as it enables him to resort promptly to pubiotomy if unexpected difficulty is encountered.

(7) The most promising field for pubiotomy is in funnel pelvis in young women, as it not only permits the delivery of a living child, but offers a reasonable prospect of permanently enlarging the pelvis so that subsequent labors will end spontaneously.

NITROUS OXID GAS ANALGESIA IN OBSTETRICS.

The use of nitrous oxid gas combined with oxygen in order to produce analgesia in obstetrics is not a new procedure. Webster¹⁰ of Chicago was one of the first here in America to try it out and to report favorably on its use. He first began using it some ten years ago in certain chosen cases, at first for operative work. In 1909 he performed an abdominal Caesarean section under gas and oxygen. During the past year in the maternity service at the Presbyterian Hospital he began the use of nitrous oxid in labor to abolish the pains caused by the contractions. He believes the method is a complete success. Usually the administration of the gas is begun when the patient complains of second stage pains, though it may also be used during the first stage. Webster uses a small nasal inhaler, the mouth of the patient being uncovered. Light inhalation generally suffices to produce the analgesic effect. It is not necessary to cause asphyxiation or jactitation. Webster uses pure nitrous oxid gas or gas with oxygen.

Lynch¹¹ reports its use in 34 cases more than one hour, 32 cases more than three hours, four cases more than four hours, and in one case more than six hours.

Webster and Lynch and the other writers all agree that with the portable machines that are now present on the market gas can be used at homes as well as at hospitals.

Davis¹² recommends a more complicated machine, having an automatic regulator by which means a constant pressure is maintained in the gas bag. Davis says the cost of using this method of analgesia is about \$1.50 per hour.

Davis says he starts the gas whenever the uterine contractions become painful, and if it is early in labor he uses a higher per cent. of oxygen and gives three or four inhalations; later less oxygen is given and five or six inhalations are allowed.

Webster, Lynch and Davis all feel that the analgesia does not lengthen labor, but rather will shorten it, that there are no ill effects to mother or child, and that the strength of the uterine contractions, no matter how long the gas is given, is not diminished. Skeel¹³ agrees with the above and adds that there is no danger of post-partum hemorrhage. Luther¹⁴ reports that he has given gas in fifty-four cases and gives the history more or less detailed of seven of the cases. Among these seven cases are high forceps, normal deliveries, and one ease when for-

ceps failed and pubiotomy was done. In this last ease analgesia was continued for five hours and then complete anesthesia for two hours and forty minutes. One hour after the delivery was accomplished the patient was eating breakfast.

Luther speaks, in cases where the baby, for some reason, does not cry at once, of blowing out the baby with oxygen by giving straight oxygen to the mother.

Heaney¹⁵ advises the use of oxygen for he thinks the analgesia is more readily maintained and that the headaches which sometimes appear are then more infrequent. He warns us that the amount of gas necessary varies with the individual susceptibility and that if the mixture is too rich the analgesia is imperfect, the patient becomes cyanotic and the consciousness is clouded.

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Book Reviews.

X-Rays: How to Produce and Interpret Them.

By HAROLD MOWAT, M.D., Edinburgh, Temporary Lieutenant, R.A.M.C. London: Henry Frowde and Hodder and Stoughton, 1915.

This volume in the series of Oxford Medical Publications is intended as an elementary manual on the subject of the production of the Roentgen ray and the clinical interpretation of the plates obtained by its use. The subject of therapeutics is not considered, but emphasis is laid upon diagnosis. The book is divided into two parts, dealing respectively with production and interpretation; and the second part is di-

vided into five chapters dealing respectively with the thorax, the alimentary tract, the genito-urinary tract, injuries of the bones and joints and diseases of the bones and joints. The work is admirably illustrated with 106 figures, of which twenty-five represent apparatus and the remainder are actual skiagrams of various parts of the body. The volume should be of especial value to practitioners who wish to acquire an understanding of the principles of x-ray production and of its diagnostic employment in practice.

The Early Diagnosis of Heart Failure and Other Essays of the Heart and Circulation. By T. STACEY WILSON, M.D. (Edin.) New York: William Wood and Company. 1915.

The book represents a collection of different essays dealing mainly with heart failure. These essays were written at different times, which somewhat disturbs the balance of the book. The author in many senses can be regarded as a special pleader for certain signs and terms that seem strange to us. For example, he lays great stress upon the value of an abnormal rise in the average level of the diaphragm as a guide to the volume of blood in active circulation. He also discusses at great length distensibility of the heart. He uses many of the ordinary terms of medicine to mean quite otherwise than the accepted meaning. There are practically no references to the literature and little mention is made of pathology. The book does represent, however, the wide clinical experience of a careful, thoughtful observer who embraces the opportunity to present some unusual ideas.

Diarrheal, Inflammatory, Obstructive and Parasitic Diseases of the Gastro-Intestinal Tract. By SAMUEL G. GANT, M.D. Philadelphia: W. B. Saunders Company. 1915.

The underlying facts of diarrhea are very little understood by the medical profession. Dr. Gant has made a noteworthy attempt to bring a certain amount of order out of the chaos of conflicting evidence. The author has arranged his material well. The discussion is adequate and concise. He takes up the surgical treatment in a thorough yet conservative fashion. There are special chapters on tropical and parasitic diseases. All in all, the book can be recommended as a much needed, lucid exposition of a confused subject.

Consumption. By JOHN B. HAWES, 2d, M.D. Boston: Small, Maynard and Company. 1915.

This is one of a considerable number of books called the "Welfare Series." Dr. Hawes is peculiarly well fitted to contribute the volume on consumption. The book is not designed for

the expert in tuberculosis, but for the busy general practitioner and the laity. Dr. Hawes writes with vigor and enthusiasm and with paints an honest and accurate picture of the fundamental facts about tuberculosis, its diagnosis and treatment. The author indulges in no glittering generalities, but answers in a sane practical way the multitude of questions that consumptive patients really ask. It is a cheerful message that Dr. Hawes bears and it will help many doctors and patients who read it.

The Medical Annual; A Year Book of Treatment and Practitioner's Index. Bristol: John Wright and Sons. 1915.

This exceptionally belated thirty-third annual issue of a standard British year book appears under a slightly different title and in considerably altered form from its predecessors. The book is printed on better paper and in a new and more prominent type. The general index is transferred from the end to the beginning, and, for the first time, the book contains a large amount of advertising. At its close is published also a list of the principal medical works and new editions which appeared during 1914, a list of British medical institutions, homes, spas and sanatoria, and an official and trade directory. The text has been increased by 58 pages over the edition of 1914, and with the advertising and index makes a total of 1080 pages. The work presents an efficient and thorough summary of the year's progress in all branches of medical science, especial prominence naturally being given to the special articles on naval and military surgery. The new edition of the British pharmacopeia is also carefully considered and the drugs noted in this volume have been unified in accordance with it by Dr. O. C. M. Davis of Bristol. The volume is the work of thirty-two distinguished contributors. Among the new names appearing this year are those of Dr. E. Wyllis Andrews of Chicago and Col. Louis LaGarde of the United States Army Medical Corps. Especially to be noted among the newer articles are those on abdominal surgery by Dr. Andrews, those on naval and military surgery by Dr. LaGarde, Dr. Cheatle and Dr. Wildey, and on shock by Dr. A. Rendle Short of Bristol. The book is more fully and effectively illustrated than ever before, with 71 full page plates, some of them colored, and 149 text cuts. The volume maintains its standard value and has many additional and unusual features of interest.

The Intervertebral Foramina in Man. By HAROLD SWANBERG. Chicago: Scientific Publishing Company. 1915.

This volume is published as a supplement to the author's previous monograph on the intervertebral foramen, reviewed in the issue of the

JOURNAL for April 23, 1914 (vol. clxx, p. 658.) It is intended to present the morphology of the intervertebral foramina in man, including a description of their contents and adjacent parts, with special reference to the nervous structures. The data upon which these observations are based were briefly reported in the *Journal of the American Medical Association* for October 31, 1914, and in the *New York Medical Record* for November 14, 1914, and January 30, 1915. Like its predecessor, this book does not aim to argue the question of the origin of diseases from spinal abnormalities producing pathologic changes in the intervertebral foramina, their contents or surrounding tissues, but merely aims to present a clear and concise description of the normal morphology of these apertures and parts in man. It extends Mr. Swanberg's research from the cat to the human being; and Dr. Harris E. Santee, in his introductory note, expresses the belief that, in the light of this research and of the new knowledge based thereon, "certain theories of spinal tension and compression must be greatly modified. The undoubtedly anatomic facts revealed in this painstaking scientific work necessitate a complete re-statement of the *rationale* of cures effected by spinal manipulation." The work is illustrated with eleven original full page plates and employs the B.N.A. terminology throughout. It is issued from the anatomical laboratory of the Chicago College of Medicine and Surgery.

Applied Immunology. By B. A. THOMAS, A.M., M.D., and R. H. IVY, M.D., D.D.S. Philadelphia and London: J. B. Lippincott Company. 1915.

This monograph from the William Pepper Laboratory of Clinical Medicine aims to place within the reach of practitioners a knowledge of the practical application of sera and bacterins prophylactically, diagnostically and therapeutically. To this end accounts of experimental research are largely omitted and theories are presented only in so far as they may assist thorough comprehension, the primary object being to enable readers and students to apply competently to practice the principles underlying immunology. The subject is logically presented in a series of twenty-one chapters, each dealing with a definite aspect, and in an appendix there are three special chapters on the serum treatment of hemorrhage, on organotherapy and on chemotherapy. There is a brief alphabetic glossary of immunologic terms and the work is well illustrated with five colored inserts and sixty-eight figures in the text. It should prove a practical treatise of value in the clinical application of the knowledge acquired by research in immunology.

A Text-Book of Medical Jurisprudence and Toxicology. By JOHN GLAISTER, M.D.

D.P.H. (Camb.), F.R.S.E., Professor of Forensic Medicine and Public Health in the University of Glasgow. Third edition. New York: William Wood and Company. 1915.

This third edition of a standard work on legal medicine presents few extensive alterations from the second edition of 1910. Some of the chapters have been rearranged, others abbreviated, and some moderately extended, and there has been added a brief sketch of the general medical council, its duties, its statutory powers, with a full account of its penal resolutions. The book is well illustrated with 137 figures in the text and 1 colored plate. The index also has been made more detailed and complete. The work should continue to fulfil its useful function to students and practitioners of medicine and of law.

Annual Report of the Health of the Imperial Navy. For the Year 1911. Tokyo. 1915.

This belated annual report of the Japanese Imperial Navy Medical Corps presents in English version the morbidity and mortality statistics of that navy for the year 1911, based upon the same materials as that of the preceding year. The number of patients and the number of days' sickness show an increase over the preceding year, due to the increased size of the navy; but show a pro rata decrease compared with the preceding year and the average of the past fourteen years. The majority of the report consists of numerical statistic tables which are summarized, though not extensively interpreted, in the introduction. Accompanying this volume is the Japanese text of the report and also of the report for the year 1912.

Modern Aspects of the Circulation in Health and Disease. By CARL J. WIGGERS, M.D., Assistant Professor of Physiology in Cornell University, New York City. Philadelphia and New York: Lea and Febiger. 1915.

This monograph deals with the application of laboratory methods to the clinical explanation of obscure cardiac conditions, the understanding of whose nature and classification is part of the recent development of the modern study of cardio-vascular diseases. It is divided into three sections, the first dealing with the physiology of the circulation, the second with the graphic laboratory methods by which data about the heart and its action may be obtained, and the third with the phenomena presented by the various diseases of the circulation. At the close of each chapter is an admirable selected bibliography of the topic under discussion. The volume is a valuable compilation for clinicians of the newer methods of cardiac study and interpretation. It

is well illustrated with 104 engravings, chiefly of apparatus and graphic charts. It should prove a useful manual for students and practitioners desiring familiarity with the newest field of cardiac nosology.

Exercise in Education and Medicine. By R. TAIT MCKENZIE, B.A., M.D. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1915.

The first edition of this standard manual of medical gymnastics was reviewed at length in the issue of the *JOURNAL* for February 10, 1910 (Vol. clxii, p. 184). This second edition has been almost completely rewritten in the light of the great advances in physical education which have been made during the past four years. The chapter on physiology has been expanded into four chapters. Especial attention is paid to the comparison and criticism of the German, Swedish and French systems of athletics and physical training. As before, the book is divided into two parts, dealing respectively with exercise in education and exercise in medicine. In the latter portion the chapters on medical gymnastic movements and massage have been expanded and rearranged and new chapters have been added on respiratory gymnastics, the treatment of visceral ptosis and functional disorders of the nervous system. The book is well illustrated with 478 figures in the text, and should continue its usefulness to physicians and educators.

Transactions of the American Pediatric Society. Edited by LINNAEUS EDWARD LAFÉTRA. Vol. xxvi. Chicago: American Medical Association Press. 1915.

This volume contains the proceedings of the twenty-sixth session of the American Pediatric Society held at Stockbridge, Mass., from May 26 to 28, 1914. The presidential address by Dr. Samuel McC. Hamill, of Philadelphia, deals with the responsibility of the pediatrician for the problems of public health. There are twenty-eight other papers on a variety of pediatric subjects. Dr. John L. Morse of Boston presents a study of the causal relation between the pasteurization of milk and infantile scrofulosis; and Dr. Francis G. Benedict and Dr. Fritz B. Talbot continue their studies in the respiratory exchange of infants, with abundant tables and diagrams. The volume affords a useful contribution to the literature of recent progress in pediatrics.

Urgent Symptoms in Medical Practice. By ROBERT SAUNDBY, M.D. London: Edward Arnold. 1915.

This volume, by an eminent Birmingham phy-

sician, is intended as a reference work for practitioners and students on symptomatology. Such a book runs danger, in other than the most competent hands, of becoming a mere catalogue of symptoms upon which the inexperienced may rely for diagnosis and treatment in the absence of genuine medical knowledge. In the present instance, however, this danger is abundantly avoided. The work constitutes a valuable alphabetic collection of brief essays upon the significance of symptoms, from abdominal pain to yawning, and its use as a text-book should be of value to physicians even more than as a work of reference.

Studies from the Rockefeller Institute for Medical Research. Vol. xxi. New York: Rockefeller Institute for Medical Research. 1915.

This twenty-first volume continues the collective republication of reprints from various medical journals presenting the research work of the Rockefeller Institute. Among the papers constituting the present collection may be noted those of Flexner on the penetration of the virus of poliomyelitis from the blood into the cerebrospinal fluid and on the localization of the virus and pathogenesis of epidemic poliomyelitis. Dr. Peyton Rous continues his work on chicken tumors, on the cause of the localization of secondary tumors at points of injury, and on the greater susceptibility of an alien variety of host to an avian tumor. Jacques Loeb also continues his studies in fertilization and parthenogenesis. Dr. Alexis Carrel offers a report on the present (May, 1914) condition of a strain of connective tissue twenty-eight months old. He also presents the results of his work of last year on the surgery of the cardiac valves and on the technic of intrathoracic operations. The volume is well illustrated by many full page plates and text cuts, and constitutes a valuable archive of the progress of medical research.

A Manual of the Practice of Medicine. By A. A. STEVENS, A.M., M.D. Tenth edition. Illustrated. Philadelphia and London: W. B. Saunders Company. 1915.

The ninth edition of this standard medical handbook, prepared especially for students, was reviewed in the issue of the *JOURNAL* for Dec. 21, 1911 (vol. clxv, p. 959). In this tenth edition some of the chapters have been entirely rewritten and several new ones have been added. The number of pages is increased from 573 to 629. The plan of the book is unaltered. It is illustrated by seventeen text cuts. The additions which have been made deal chiefly with those diseases in whose knowledge recent progress has been made. The book should continue its usefulness as a convenient, clinical manual for students and practitioners.

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THE CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

THE Clinical Congress of Surgeons, which is meeting in Boston this week, is an organization which has in the few years of its existence proved of great value to surgery in this country. The membership consists entirely of surgeons, and of surgeons who realize the importance of leaving home occasionally for clinical purposes. When the Congress meets in a city, the clinical forces of that city are mobilized, so to speak, and the various clinicians are prepared to show what lesson, if any, they have to teach their colleagues. The result is that in a short space of time, one gets a concentration of clinical work which in the scattered clinics of our cities can rarely be coördinated and made effective.

The evening meetings have been noteworthy always for the high character of the work presented and of the men taking part. The visiting

surgeons make these papers in the evening their contribution in return for the clinical program offered by the city visited. This year, the evening meetings are of special and timely interest. (The evening program was given in our editorial of October 14.)

The eminence of the Society's officers and the interest they have taken in the success of the Congresses has been productive of excellent results. The society has previously met in Chicago, Philadelphia, New York, and London, and most of those who have registered have been enthusiastic as to their value. Some of the earlier meetings were marred by overcrowding, but limitation of the number allowed to register, and the ticket system, have largely done away with that evil. The meeting in London was orderly, dignified, and of the greatest value to all who attended.

It is to be hoped that the meeting in Boston, with its famous hospitals, both old and new, and its excellent medical schools, may be of value to our visitors, as we know it will be to us who are honored by their visit.



AMERICAN FIRST AID CONFERENCE.

THE first meeting of the American First Aid Conference was held on August 23 and 24, 1915, at Washington, D.C. The deliberations of this conference culminated in the adoption of the following resolution, creating a board on first aid standardization for the purpose of studying first aid problems and standardizing methods, materials and equipment employed in the administration of first aid to those injured in the pursuit of industrial occupations and in war:

"Whereas, There is a great lack of uniformity in first aid methods; in first aid packages, and in other first aid equipment; and in first aid instruction, and

Whereas, Many of the aims of first aid are defeated thereby and needless suffering and expense incurred,

Therefore, Be it Resolved:

That this Conference recommends to the President of the United States that he appoint a 'Board on First Aid Standardization,' said Board to consist of one officer each from the Medical Corps of the U. S. Army, the Medical Corps of the U. S. Navy, the U. S. Public Health Service, the American National Red Cross, the American Medical Association, the American Surgical Association and the Association of Railway Chief Surgeons of

America; this Board to deliberate carefully on first aid methods, packages, equipment and instruction and to recommend a standard for each to a subsequent session of this Conference to be called by the Permanent Chairman; the creation and maintenance of the said Board to be without expense to the United States."

To attain the objects of this movement it is essential that this board should consult the best opinion of the country on the problems involved and should enlist the sympathy and active co-operation of medical societies throughout the United States. To this end the following resolution was also passed by the conference:

"That the questions noted below be sent to the Chief Surgeons of Railroads, Mines and Manufactories, first, to be answered by them; second, that a copy of these questions be sent by the Chief Surgeons to their Associate Surgeons.

The object of these questions is to attempt to get the opinion and experience of a number of surgeons and to formulate them for publication.

Please answer each question on a separate sheet of paper and sign your name to each sheet:

1. What has been your experience with the most available first aid package and dressing for small and large wounds?

2. What has been your experience with the immediate employment of antiseptics in accidental wounds; what antiseptic have you used, in what strength, and how applied? Have you employed tincture of iodine? If so, how and what have been the results?

3. What in your experience has been the most efficient and most readily applied method of fixation for injuries of the (a) upper and (b) the lower extremity?

4. Have you considered the construction of a stretcher, which, in addition to serving as a means of transportation of injured, will have appliances for the fixation of the upper and lower extremity, somewhat along the lines of a Bradford splint, or the Gibon naval splint?

5. Please state your views on some liquid ointment dressing which would be available for first aid in large wounds and burns with the object of preventing the usual dry-gauze dressing adhering to the wound and rendering subsequent dressings painless."

The secretary of the conference, Dr. Joseph C. Bloodgood of Baltimore, has also sent to the secretaries of medical societies throughout the United States a circular letter, urging them to submit to the councils of their respective societies a resolution to appoint a special committee of three surgeons to study and deliberate carefully on first aid methods, packages, equipment and instruction. To recommend a standard for each to the National Board, and, through a spe-

cial representative or representatives, participate in the next American First Aid Conference which will be convened to consider the results of the labors of the National Board. The secretary of the conference, Dr. Bloodgood, will also welcome answers to the above questions from any surgeons of experience in the treatment of accidental injuries, and these answers will receive full consideration in the deliberations of the National Board.

This national movement for the standardization of first aid methods cannot be too cordially approved, since its purposes and ultimate ends are directed towards the establishment of a maximum of efficiency which will be of advantage not solely to this country but to the world at large, not in war alone, but even more importantly in dealing with the many and often inevitable traumas of peaceful industries. To obtain the prevailing opinion of the medical profession on these matters and to crystallize this opinion into safe guides for action there is need of the interested coöperation of all medical societies and of the individuals who compose them. The attention of the profession is, therefore, particularly directed to this new movement in an important department of national and professional proficiency.

THOMAS CAMPION, PHYSICIAN AND LYRIC POET.

AMONG the early English physicians who won even greater distinction in literature than in medicine, and yet are undeservedly little known or remembered, is Thomas Campion, an Elizabethan and almost exact contemporary of Shakespeare. His verse was rescued from oblivion in 1889 by the literary and critical labors of Mr. Bullen, who found in the British Museum the forgotten manuscript which contained the only surviving copy of Campion's writings. A few of his lyrics have since been turned to account by modern musicians, but the majority still remain buried in the old music books where they first were published. Of Campion as a physician, there is small record except that which remains in a few extant documents.

Thomas Campion was born of unknown ancestry in London in 1567. Of his youth nothing is known save that he was entered at the University of Cambridge in 1585, though he never matriculated, probably on account of his religious beliefs. In 1586 he was admitted a mem-

ber of Gray's Inn, presumably with the idea of studying for the bar. This purpose, however, was evidently abandoned, for not long after he appeared with a medical degree obtained from some unknown source and became a practicing physician in London. Apparently he was able to combine his literary with his medical vocation, for he continued in practice and maintained his professional interest throughout his life. Early in the seventeenth century he traveled in Europe and is known to have visited the medical schools at Padua, Paris and Louvain. He died at Loudon in February, 1620 (O.S. 1619) and was buried at St. Dunstan's Church in Fleet Street, where he is recorded in the parish register as "Thomas Campion, Doctor of Physicke."

Evidently during his life Campion, like many other English men of letters and physicians, held a fairly close connection with the court, though more probably in a literary than in a medical capacity. In 1607 he wrote a masque in honor of Lord Hayes (Sir James Hay), which was performed at Whitehall on Jan. 5, and in 1612 appeared his "Ode of Mourning on the Death of Prince Henry," eldest son of James I, who died of typhoid. In 1613 he produced three court masques, one for the marriage of the Count Palatine and Lady Elizabeth, another in honor of "our most gracious Queen Anne, in her Progress toward the Bath," and the third for the marriage of the Earl of Somerset and the infamous Lady Frances Howard, the divorced countess of Essex.

There are few medical allusions in Campion's verse. Most notable in this respect are his lines addressed to one of his patients, "my honorable friend, Sir Thomas Mounson, knight and baronet," beginning

"I to whose trust and care you durst commit
Your pin'd health when art despaired of it."

This Mounson or Monson had been imprisoned in the Tower in 1615 and 1616 on suspicion of being concerned in the murder of Sir Thomas Overbury, and Campion, who served as a witness in his behalf, was allowed to visit him as his medical attendant during imprisonment. He was released in 1617.

Campion's reputation as a poet was evidently high in his own generation. William Camden mentions him with Sir Philip Sidney, Ben Jonson and Shakespeare as among those whom "succeeding ages may justly admire." John

Daines of Hereford wrote naively of Campion as follows:—

"Rare doctor with thy twofold art,
Hippocrates hath taught thee the one kind,
Apollo and the muse the other part.
And both so well that thou does't please

Campion's literary genius was essentially lyric and his songs are among the sweetest and purest of the Elizabethan times. He was at heart, what many poets have not been, a musician as well as a writer, and his verses, therefore, have not merely the balance of rhythm and the iteration of rhyme, but the qualities of tone and tune, possible only to one who has melody as well as cadence in his soul. He was also an author in the art of music and published a "New Way of Making Fowre Parts in Counterpoint by a most familiar and infallible Rule." Here he shows himself, too, a master of the melody and sweetness of prose as well as of music and verse, as for instance, in such a sentence as "There is no tune that can have any grace or sweetness, unless it be bounded within a proper key." Mr. Bullen, Campion's original editor, says of him, "even when matched for beauty of expression or surpassed for wealth of imagination, he is still the master of subtle cadences, a lord of haunting rhythm and delicate measures, whom in his kingdom few have approached and certainly none has surpassed."

It is unfortunate that we know so little of Campion as a physician, yet perhaps he was none the worse in his profession that he was a master of his avocation. In a recent address on British medical men of letters, before the Ilminster Literary Society, Dr. W. H. Maidlow* has called attention to the following quotation upon this topic from Bacon's "Advancement of Learning":

"Therefore I cannot much blame physicians that they use commonly to intend some other art or practice which they fancy more than their profession. For you shall have of them antiquarians, poets, humorists, statesmen, divines,—and in every one of these better seen than in their profession,—and no doubt upon this ground they find that mediocrity and excellency in their art maketh no difference in profit or reputation, for the weakness of patients and the sweetness of life maketh men depend on physicians with all their defects."

ETHER DAY.

THE sixty-ninth anniversary of the first public demonstration of surgical anesthesia with sulphuric ether was observed in the customary manner at the Massachusetts General Hospital on October 16. At the afternoon exercises Dr. Henry P. Walcott, chairman of the hospital trustees, awarded diplomas to the graduating house officers and introduced the orator of the day, Dr. William W. Keen of Philadelphia. Dr. Keen delivered his address on "The Dangers of Anesthesia," reviewing the history of the subject since 1846, presenting extensively the statistics of various methods of anesthesia in different clinics, and suggesting that the discovery of new and more perfect anesthetic agents is yet to be expected. Dr. Keen's address is to be published in full in a later issue of the *JOURNAL*.

In the evening of October 16 the fifth annual meeting and dinner of the Massachusetts General Hospital Alumni Association were held in Boston at Hotel Vendome. Dr. James J. Putnam, retiring president, acted as toastmaster, and among the speakers were Dr. Keen, Dr. George C. Shattuck of Boston and Professors Lyman Kittredge and James Hardy Ropes of Harvard College. Dr. Shattuck described particularly his recent experiences in the work of the American Typhus Commission in Serbia under Dr. Richard P. Strong. The following officers of the Association were elected for the ensuing year:

President, Dr. Elbridge G. Cutler, '71, Boston; vice-presidents, Dr. Walter Channing, '71, Brookline; Dr. George K. Sabine, '72, Brookline; Dr. William S. Thayer, '89, Baltimore; secretary-treasurer, Dr. Byam Hollings, '01, Boston.

CENSORS' EXAMINATION OF THE SUFFOLK DISTRICT.

THE attention of recent medical graduates and of those practitioners in this Commonwealth who are not yet members of the Massachusetts Medical Society is called to the notice which appears on the last page of this issue of the *JOURNAL*, of the Censors' Examination for the Suffolk District, which is to be held at the Boston Medical Library on November 11. It is the duty as well as the opportunity of every physician practising in any state to become a member

of his state medical society. This, in addition to his official registration for practice, is an evidence to the public of his approval by his peers as a man competent to pursue the art and advance the science of medicine. Moreover, it incorporates him with his colleagues in all their endeavors for the larger promotion of the interests of the public health. Only by such united coöperation can the entire force of the medical profession be made effective for good in any community. To do this is the highest purpose of all medical organizations.

MEDICAL NOTES.

UNIVERSITY OF CALIFORNIA HOSPITAL.—It is announced that the University of California has received from an anonymous donor the sum of \$100,000 to endow memorial beds to Dr. C. W. Fox and his wife in the University of California Hospital. These beds are to be maintained in the new building of the hospital now being erected in San Francisco at a cost of \$615,000 as a part of the equipment of the Medical School of the University of California.

A MEDICAL SCHOOL AMALGAMATION.—Report from Philadelphia on October 16 announces the probability of a union between the Medicochirurgical College of Philadelphia and the Medical School of the University of Pennsylvania, the students and the medical equipment of the former institution to be transferred to the latter. It is also planned at the University of Pennsylvania, beginning with the fall of 1916, to extend the veterinary course in medicine from three to four years, and in the fall of 1917 to make a similar extension in the course in dental medicine.

INCREASE OF NAVY MEDICAL SERVICE.—In an address before the Philadelphia Medical Club on October 15 Rear Admiral Dr. William C. Braisted, surgeon-general of the United States Navy, advocated the establishment of a naval medical reserve corps to consist of 700 surgeons and 500 male trained nurses. He also advocated the increase of the active corps to 400 surgeons and 800 woman nurses. A two-year reserve supply of medicine and other necessities should also be accumulated in the event of emergencies and the addition of several new hospital ships is also urgently recommended.

NEW PRESIDENT OF STANFORD UNIVERSITY.—It was announced on October 15 that Dr. Ray Lyman Wilbur has been elected president of Leland Stanford, Jr., University and will assume that office on January 1, 1916. Dr. Wilbur was born at Boonesville in 1875 and is at present

the head of the medical department of Stanford University. He was president of the American Academy of Medicine in 1912-13.

LONDON DEATH RATES IN AUGUST.—Statistics recently published show that the total death rate of London in August, 1915, was only 11.6 per thousand inhabitants living. Among the several districts and boroughs, the highest rate was 16 in Poplar, one of the populous East Side slums, and the lowest was eight, in Wandsworth, an even more populous residential district on the South.

DETROIT ACADEMY OF MEDICINE.—The annual meeting of the Detroit Academy of Medicine was held in that city on October 12. The following officers were elected for the ensuing year: president, Dr. Charles D. Aaron; vice-president, Dr. Guy Connor; secretary and treasurer, Dr. Alpheus F. Jennings.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The forty-first annual meeting of the Mississippi Valley Medical Association was held at Lexington, Ky., on October 19, 20 and 21, 1915, with headquarters at the Phoenix Hotel. At the opening session the addresses of welcome on behalf of the city, of the local profession, and of the association were followed by the introduction of the president, Dr. Hugh Cabot of Boston. The meetings of the medical and surgical sections were held both morning and afternoon of each day. Among the papers presented at the various sessions were those on "Percussion Outlines of the Heart" by Dr. George C. Shattuck of Boston, "The Mechanics of Renal Infection" by Dr. Edward L. Keyes, Jr., of New York, "Cancer of the Gall Bladder" by Dr. F. T. Murphy of St. Louis, "Differential Diagnosis of Kidney Lesions" by Dr. Hugh Cabot and "Congenital Dilatation of the Colon" by Dr. Richard M. Smith of Boston. At the evening session on October 19, Dr. Cabot delivered his presidential address on "Medicine, a Profession or Trade?" The address in surgery was given by Dr. F. T. Murphy and the address in medicine by Dr. Richard P. Strong of Boston. It is expected that some of these addresses and papers may be published in subsequent issues of the JOURNAL.

NATIONAL ASSOCIATION FOR THE STUDY OF PELLAGRA.—The third triennial meeting of the National Association for the Study of Pellagra was held at Columbia, S. C., on October 21, and 22, 1915, under the presidency of Dr. C. H. Lavinder of the United States Public Health Service. At the afternoon session on October 21, there was a series of seven papers on the etiology, statistics and history of pellagra. Among these was a paper by Dr. A. C. Thomas of Foxboro, Mass., on the history of pellagra in Massachusetts. The evening session on this

day was devoted to a symposium on vitamines and pellagra. At the morning session on October 22, there were three longer papers reporting laboratory investigations of pellagra; and at the afternoon session on that day a series of ten shorter papers on clinical features of pellagra and five on the treatment of pellagra. On Saturday morning, October 23, there was held under the auspices of the South Carolina Board of Health a special meeting to take action upon a memorial to the state legislature for appropriations to further the study of pellagra and the care of pellagrins in the state. An effort is to be made to secure uniform action of state boards of health to lay these matters before their respective legislatures and the national congress.

PREVALENCE OF MALARIA, MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for October 8, states that during the month of August, 1915, there were in Mississippi 25,998 cases of malaria, 1,787 of pellagra, 78 of small-pox and 1,106 of typhoid fever. During the same month there were in New York 17 cases of cerebro-spinal meningitis, 46 of poliomyelitis and 877 of typhoid. There were 91 cases of small-pox, and 25 of typhoid in Wisconsin.

EUROPEAN WAR NOTES.

RETURN OF MEMBERS OF HARVARD UNIT.—Report from New York states that on October 17, there landed in that city from Liverpool aboard the *Philadelphia*, six American surgeons returning from service with the Harvard unit in England and France. These were Drs. W. L. Lacey, W. A. Lane, W. J. Dodd, R. R. Sadler, C. C. Simmons and Paul Withington.

CHOLERA IN AUSTRIA-HUNGARY AND GERMANY.—During the week ended July 24, there were in Austria 2,040 cases of Asiatic cholera with 956 deaths, the majority of these being among the civil population. In Germany during the week ended August 21, there were 236 cases of cholera with 73 deaths, the majority of these being among the prisoners of war.

NEEDS OF AMERICAN AMBULANCE HOSPITAL.—An appeal has recently been issued by the board of governors of the American Ambulance Hospital at Neuilly, Paris, urging the need of further funds for the continuance of the work of that institution during the coming year. It is stated that the cost of maintaining the hospital is approximately \$1000 a day. Of the funds thus far subscribed only \$60,000 at that time remained, so that there is immediate need of raising \$350,000, to insure the continuance of the hospital for another year. The appeal states that the continuance of the hospital is earnestly desired by the French people.

"The funds on hand are barely sufficient to support the hospital for two months longer, and if Americans wish this work to go on, provision must be made at once in order that the American Ambulance will not have to close its doors for lack of funds. The governors of the American Hospital, the members of the Ambulance Committee, and the members of the American Committee believe that Americans will not be willing to consider such a possibility."

"The statistics show that the daily average number of patients in the hospital during June was 536. This number has been increased lately.

"The net running expense of the Ambulance for the nine months ending in June is given as \$206,644, but this does not include the heavy expenses of installing the new service, procuring new equipment and constructing new accommodations.

"A cable message reporting the progress of the three hospitals was received recently by Mr. Bacon from the Ambulance Committee. It read:

"Neuilly, France, Oct. 5.

"The hospitals at Neuilly and Juilly and the field ambulance service are running at high pressure and maximum efficiency. The patients under treatment are well above the normal capacity, but we are successfully coping with the emergency. The figures for Neuilly show that 3000 have been admitted since it was opened and 2400 discharged; 72,000 patients have been transported by the ambulance service. The field hospital is now well advanced and everything we can do is of great medical and real value, and will be of unperishable credit to the American people.

"The ambulance corps, which is a distinct feature of the service in itself, is composed of young volunteers, most of them recent graduates from American colleges and universities."

WAR RELIEF FUNDS.—On Oct. 23 the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund.....	\$275,042.00
French Fund.....	19,325.72
Armenian Fund.....	7,109.00
Surgical Dressing Fund.....	5,105.00

BOSTON AND NEW ENGLAND.

ELECTION OF OFFICERS OF THE BOSTON DISPENSARY.—At the annual meeting of the corporation of the Boston Dispensary, Edward R. Warren was elected president, Ashton L. Carr, treasurer; Dr. Edward C. Streeter, secretary; Charles M. Davenport, Mrs. Hilbert F. Day, Miss Alice DeFord, Lorin F. Deland, Mrs. Henry Ehrlich, Edwin Farnham Greene, Edward S. Grew, Randolph C. Grew, John F. Moore, Stuart W. Webb and Moses Williams, Jr., trustees. Michael M. Davis, Jr., was reappointed director.

It was reported that the work of the past year was greater than at any time since the founding of the institution 119 years ago. 120,368 pa-

tients were treated and the district physicians of the dispensary made 13,250 visits to the sick.

THE BOSTON DISTRICT INSTRUCTIVE NURSING ASSOCIATION.—The school of the Boston District Instructive Nursing Association has opened this season with thirty-nine students. Of this number, eleven nurses are students in the eight months' course, which is carried on in co-operation with Simmons College and the School for Social Workers, about twenty are taking a four months' course and five are from the senior classes in Boston hospitals who will do observation work in the regular daily duties of the association. Students have registered from Colorado, Minnesota, Illinois, Maryland, New Jersey, and New York; the New England States and Boston particularly supplying the greatest number.

DIPHTHERIA IN MALDEN.—Report from Malden, Mass., states that during the week ended October 16, 40 cases of diphtheria were reported in that city, 16 of them being in a single school. This school has been closed for several days by order of the local Board of Health and strict quarantine has been extended over all houses where the infection has occurred.

QUARANTINE AT BRIGHTON.—Although cattle from all over New England are being received for immediate slaughter at Brighton and sales are held on Friday afternoon, no public auctions are permitted to be held and no cows are allowed to enter the barn for purposes of sale. After the ten federal and state inspectors have twice visited the 1200 farms in the vicinity of Leicester and pronounced the district free from evidence of foot and mouth disease the barn at Brighton will be opened and auctions permitted.

HOSPITAL BEQUEST.—The will of the late Walter Whitman Hodges of Brookline, Mass., which was filed on October 16, for probate at the Dedham Court, contains a bequest of \$25,000 to the Boston Floating Hospital to constitute an endowment fund to be known as the Helen Ingalls Hodges Fund.

MILK AND BABY HYGIENE ASSOCIATION.—A recently published report of the Boston Milk and Baby Hygiene Association records the data of its third summer of special work in the prevention of infant mortality in Boston. From June to September, 1915, the Association supervised at its milk station the feeding of 2,997 babies and a total of 16,666 visits were made by its nurses to patients in their homes. The value of these visits is, of course, not solely alleviative but educational. The total attendance at the clinics for well babies was 9210.

The Association now finds the further growth of its work for which there is an abundant field hampered by lack of adequate funds and contributions to this end are, therefore, earnestly to be desired and urged. It is also particularly to be remembered that this

work is not limited to the summer season, but hat to make its full value effective, it should e continued systematically throughout the year. Mr. Bedinger in his report, emphasizes this im- portant fact as follows:

"The prevention of illness among babies in a great city like Boston is a task not only for the summer, but for every month in the year. Last summer's campaign was paid for by special gifts, but the maintenance and necessary improvement of our year-round service depends on our regular contributors and those who know the value of this work to keep babies well."

To reap the full fruit of the good work done a summer it is essential that means should be at hand to enable the continuance of this work he year around.

Miscellany.

BUREAU OF HEALTH, PHILIPPINE ISLANDS.

THE annual report of the Bureau of Health or the Philippine Islands for the year ended December 31, 1914, records the work of the department under the directorship of Dr. Victor Heiser. Dr. Heiser resigned from this position on the 28th of February, 1915, after twelve years of service, and the present commendable sanitary condition of the Islands is a testimony to his efficient and untiring devotion.

In presenting his report he states as follows:—

"For the first time in the history of the Bureau of Health, no officers of the Bureau were imported from the United States, all vacancies being filled by residents of the Islands. Dr. Vicente de Jesus was appointed Assistant Director of Health on January 22, 1914.

"Manila's Death Rate.—The death rate for the city of Manila during the month of June reached 17.65 per 1,000 per annum, which is the west point which has been reached since American occupation. Owing to the appearance of cholera in the city, the result of the second half of the year was an increase in the death rate, so at the average for the year was 24.67 per 100 as compared with 24.98 for last year.

"Soil Pollution.—Most encouraging progress has been made in the campaign against soil pollution. There is reasonable hope that if the disposal of human excrement can be properly safeguarded it will result in an annual saving of at least 25,000 lives in the Philippine Islands.

"It is estimated that at least 90% of the inhabitants of the Philippines are infested with some form of intestinal parasite. As soon as the precautions against reinfestation become more generally adopted, it is the intention to take steps to rid the inhabitants of the parasites which they harbor, and the prospects of making great

improvement in the health of the residents of these Islands is, indeed, very encouraging.

"Milk.—The fresh milk supply of the city of Manila is still very unsatisfactory. A few dairies have complied with the standards of the commission on milk standards appointed by the New York Milk Committee, but the great bulk of the milk sold in Manila is handled under most insanitary conditions. On account of the fact that it is practically all collected by persons who own one or two carabaos and who are scattered over an enormous territory outside of Manila, it is impracticable at present to enforce the requirement of a modern dairy. It has been the hope to make the milk at least reasonably safe by proper pasteurization, and in order to accomplish this the Legislature made an appropriation to 'La Gota de Leche' Society for the Protection of Infants for the construction of a building in which may be installed the milk sterilizing plant which was donated by Mr. Nathan Strauss of New York. The erection of this building has been discouragingly slow, but the prospects now are that it will be available for use during the course of the next few months.

"Canned Milk.—Heretofore the poor quality of most of the fresh milk which is offered for sale in the Philippines has been largely offset by the importation of an excellent quality of natural whole milk, which can be bought under contract for large quantities in the Manila market for less than 24 centavos (12 cents) per liter (quart). The competition became so keen, however, that many dealers began to sell skinned canned milk, which was placed in cans with most attractive labels, and as a large proportion of the public did not appreciate that skinned milk was not a nourishing food for children, large quantities of it began to be sold. This practice has been effectively stopped by the Legislature placing an internal-revenue tax upon all skinned milk, in whatever form, from which the cream has been removed entirely or in part, of 20 centavos (10 cents) for each kilogram (2.2 pounds) of gross weight of said milk and containers. This affords another instance where taxation has come to the rescue of sanitation in a most effective manner.

"Cancer.—During the early years of American occupation it was the general belief among medical men that cancer prevailed less extensively in the Philippine Islands than in the Temperate Zone. The opening of the Philippine General Hospital afforded an opportunity to study the disease on a large scale and under scientific conditions. While this experience has not been sufficient to draw definite conclusions, yet the indications are that cancer prevails as extensively in the Philippine Islands as elsewhere. Dr. George G. Davis, assistant professor of surgery, College of Medicine and Surgery, who has been on duty at the hospital, has recently reported 65 cases of oral cancer apparently very closely associated with the chewing

of betel nut and the buyo leaf. This habit prevails very extensively in the Philippines. A slice of betel nut is placed upon a buyo leaf, ordinary lime is sprinkled upon it, and then it is wrapped up in the leaf and the whole morsel is placed in the mouth and chewed.

"Cerebrospinal Meningitis."—The outbreak of cerebrospinal meningitis at the railway camp at Laguimanoc, mention of which was made in the last annual report, has completely subsided and only two authentic cases are known to have occurred anywhere in the Philippine Islands during the year. The diagnosis of these was confirmed by autopsy made at the city morgue.

"Cholera."—During the early part of July cholera made its appearance almost simultaneously in Manila and at a number of places in Rizal and Bulacan and Pampanga Provinces. So far as known, there had not been any cholera anywhere in the Philippine Islands for a period of several months. Careful stool examinations are made of all passengers coming to the Philippines from foreign infected territory, but no cholera carriers had been detected since January 10, 1914, so that it seems unlikely that the disease was introduced from a foreign country. The outbreak was very similar to that described for the previous year in the last annual report, so that it would be a mere repetition to mention it in detail. After the disease once had been established there was no difficulty in tracing the majority of cases in new territory to a previous case. The disease on the Island of Luzon slowly spread as far north as the Ilocos Provinces and a few cases also appeared in Aparri, Cagayan Province. It spread as far south as the Province of Tayabas. A small outbreak occurred in Capiz Province, which was directly traced to infection at Manila. Several cases appeared in Iloilo and these were traced to Capiz, but no spread took place. The energetic work of the health officers in a number of other provinces prevented the disease from getting a foothold there. In Manila cholera carriers were found in very large numbers and these were isolated at the San Lazaro Hospital under the same quarantine restrictions as true cholera cases. This had been done during the previous year, but this time it caused more opposition, which was, however, successfully overcome and the entire press of the city finally came to the relief of the Bureau by advocating the measure.

"Leprosy."—The treatment of leprosy with a hypodermic mixture of chaulmoogra oil at the San Lazaro Hospital by Dr. Eliodoro Mercado and at Culion by Drs. Paul Clements, José Martin, and Vicente Frias has continued to give encouraging results.

The treatment will be given a thorough trial by the United States Leprosy Investigation Commission which is at present conducting work in the Hawaiian Islands. With the hope that the treatment might be further improved and placed upon a more scientific basis, the Sec-

retary of the Interior named a committee composed of Dr. John A. Johnston, chairman, and Dr. Eliodoro Mercado and Dr. L. Ordonez, with Dr. Gervasio de Ocampo and Dr. Luis Guerrera as honorary members to make a further study of it. This committee has placed 30 cases under this treatment.

"Smallpox."—The value of effective vaccination was still further demonstrated by the experience of the past year. Serious outbreaks of smallpox occurred among unvaccinated children and other unprotected persons, especially in the Provinces of Samar, Leyte, and Surigao. Many would, no doubt, have been averted if the local health officers had carried out the regulations of this Bureau which require that all unvaccinated persons shall be vaccinated during the months of July and January of each year. Some of the disease was due to the fact that it has been impossible to deliver potent vaccine into the more remote sections of the Philippines.

"There are many places that cannot be reached in several weeks from the place of the small ice supply. In this climate glycerinized lymph cannot be depended upon to remain potent for a longer period than one week after it leaves the ice. For many years every effort has been made to solve this problem. The Bureau of Science has given much time and attention to it, as well as large manufacturing firms in Europe and the United States. Finally, one concern furnished a sample shipment of powdered vaccine which was kept for several months at ordinary temperature and then gave 85% or positive results in unvaccinated children in different series and under varying conditions. The total number of cases vaccinated being 79, with 61 positive 'takes.'

"A large shipment was then ordered, but this proved a complete failure. No better success has been had with a second shipment.

"The project of establishing a small vaccine laboratory in the remote country to be vaccinated has not been deemed practicable by the Bureau of Science. Further work in this direction is urgently demanded, because persons are dying of smallpox in remote places, who could be saved if successful vaccination were possible. Mr. Thomas Edison has interested himself in this matter with the hope of inventing a box that can be kept at a temperature of 0 C. for several weeks."

EFFECTS OF SELECTION ON ALKALOIDS IN BELLADONNA.

UNDER the title "Some Effects on the Production of Alkaloids in Belladonna," the United States Department of Agriculture in Bulletin 306 gives the results of a series of tests on controlling pollination of first and second generation plants, with especial attention to cross-

pollination and close-pollination. The following are the conclusions reached in the bulletin:

"It having been established in the previous investigation that a wide range of variation exists in the alkaloidal content of belladonna plants, the present investigation was undertaken to determine whether the characteristic of alkaloid production is transmissible to the progeny through seed and whether the character is changed by vegetative propagation. The results thus far show that the first-generation plants secured from seed of cross-pollinated selected individuals display the characteristic of the maternal parent with regard to alkaloid productivity. This condition is generally true at all stages of growth during a season and also for at least two successive seasons. Close pollination of the parent plant has shown only a moderate influence on the transmission of this characteristic.

"Second generation plants from cross-pollination have been grown at Arlington, Va., Madison, Wis., and Timmonsville, S. C., and at all three stations they have displayed the relative alkaloid-producing tendencies evident in the original parent plant and the generation preceding.

"While the plants at the different localities showed a parallel relationship toward each other, there was considerable difference in the general quantity of alkaloids produced. Thus, in the case of Madison and Arlington, where two pickings were made at fairly corresponding stages of growth, it was found that the Madison plants yielded more alkaloids than those at Arlington. At Timmonsville the yield was still greater than at Madison, but here only one picking was made, and it is hardly possible to make a true comparison. Nothing definite developed to indicate that a relationship exists between the amount of precipitation and sunshine and the percentage of alkaloids produced.

"Plants were grown from cuttings, and at two stages of their growth these plants showed marked tendency to display the same characteristic regarding alkaloid production as the plants from which they were propagated and the original parents of those plants."



PATENT MEDICINE PROSECUTIONS.

In the issue of the JOURNAL for October 14 we commented editorially on the advertising of patent medicines in the daily newspapers and published also some further comment on recent patent medicine prosecutions. In the weekly report of the United States Public Health Service on October 8, 1915, is the following brief report of a further prosecution of the same nature.

"The United States District Court for the Eastern District of Pennsylvania (see p. 3037 of this issue of the Public Health Reports) has decided that the Shirley amendment to the

United States food and drugs act is constitutional. This amendment makes it unlawful to print on the package or label of any drug false and fraudulent statements regarding its curative or therapeutic effects.

"The defendant was charged with misbranding a proprietary medicine which was sold under the name of 'Bad-Em Salz,' and with making false and fraudulent statements as to the curative properties of the remedy. The defense denied that the remedy was misbranded or that the label was calculated to mislead purchasers as to the composition or ingredients of the drug. It was also asserted that the statements relative to the curative properties of the drug were honestly made, that they were expressions of opinion, and that the defendant could not be convicted of crime merely because an opinion was expressed regarding the effects of the drug which differed from that of most physicians.

"The court held that the two questions (1) whether the name and label were such as to mislead purchasers respecting the composition of the drug, and (2) whether the statements regarding the curative properties of the drug were false and fraudulent, were both questions of fact which it was the duty of the jury to decide. The jury having decided both questions in the affirmative the conviction of the defendant was sustained."

In the weekly bulletin of the New York Department of Health for October 23 is reprinted a letter which has recently been addressed by a large firm of druggists, proprietors of several patent medicines, to pharmacists throughout New York State. This letter reads in part as follows:—

"The Board of Health of New York City is evidently trying to frighten the retail druggists so that they will not handle patent medicines. They say that after December 31 no patent medicines can be sold in New York City unless the formula is printed on the label or filed with the Health Department.

"It is unconstitutional to require the formula to be disclosed and we are not going to give ours up to the Health Board nor will we put it on the labels, but we want to assure you that you need have no fear of selling Doan's Kidney Pills, for if Dr. Goldwater should attempt to make any trouble for you on account of handling our medicine, *we will back you up to the limit*.

"The manufacturers of patent medicines are not afraid of Dr. Goldwater and there is no reason for you to be afraid of him. He is simply assuming a power that he is not entitled to and we shall not file our formulas with him until the last court in this country has so decided."

In its editorial comment on this letter, whose effrontery is an open defiance of law, the bulletin remarks that although the firm is not afraid of Dr. Goldwater, it is apparently afraid to let the truth be known about its remedies.

Correspondence.

WAR EXPERIENCES OF AN AMERICAN MEDICAL STUDENT IN ITALY.

(From Our Special Correspondent.)

EDINBURGH, Sept. 29, 1915.

Mr. Editor: After crossing the frontier from France into Italy a difference in the people could be seen at once. It was something beside language or nationality. In France we had grown used to seeing old grizzled soldiers about the station, in faded uniforms. They seemed to take little interest in what went on about them. Even the passport inspectors were apathetic and did their work in a mechanical, tired manner. It was a different story when we reached Italy.

At the border our passports were stamped by the French authorities and we congratulated ourselves on having so little trouble. But at the first Italian town, Vingtmille, we were examined and searched carefully. Officers came and went, demanded our itinerary, future plans and past history. The excuse of seeing the country seemed insufficient. Why did we want to look at churches and galleries in war time? We began to think it might have been better had we heeded the warnings given us in London that we might be turned back from Italy. Finally, after considerable consultation, they decided to let us pass, but we were informed that it would be necessary to remain in Vingtmille till next morning. After depositing our bags in a hotel, we went for a stroll down the main street of the town, a street overarched by magnificent plane trees. It was the cool of the evening. Everyone was out to take the air. Groups of soldiers sauntered up and down, trying to look unconscious of their new uniforms and the admiring glances which followed them.

From Vingtmille we traveled to Genoa and then on to Pisa. But the train was constantly held up to let troop trains pass through. It became necessary to change cars and wait some time at a junction town. The station was alive with soldiers. They looked very fine, many of them wearing broad brimmed hats with their fluttering cock feathers. Every uniform was new and unwrinkled. They were impatiently waiting to be transferred to the firing line. And they were a splendid lot of men to see—not tall, but strong and straight. Here and there could be seen a young officer examining a new revolver case with pride, or fiercely twirling his moustache while his thoughts went off to imaginary scenes of battle. How different they appeared from the tired-looking, silent soldiers of France! A year of war has sobered the French soldier.

However we were given little time to look about the station. Several officers approached us immediately and, looking at our passports, showed us into the waiting room and left us. We were delighted with their politeness, but when I started to go out into the town, I found that all the doors were locked. There was nothing to do but wait. Before long quite a party of officers came in, accompanied by a man who spoke English. They asked us the usual questions and handed our passports about curiously.

When we reached Pisa at midnight and found that we must register at the military station before we could go to sleep in the town, we began to lose patience. However, the man in charge of the office grinned broadly when he saw we were Americans and came forward to shake hands. "Sure thing," he said, he had been in America four years and would return as soon as the war was over. His income over there was many times what it was here although he had become an officer. "Yes," he said, "I come back. I drive da ice wagon in New York some more."

The longer we stayed in Italy the more we realized the tremendous enthusiasm running through the

country. The papers are filled with stories of the bravery of Italian troops. The war is popular with the people. They feel that at last Italia is taking her stand with the great nations and their pride and enthusiasm know no bounds.

WILDER G. PENFIELD.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING OCTOBER 16, 1915.
No contributions for the week ending October 16, 1915.

Previously reported receipts.....	\$7,866.84
Total disbursements.....	7,310.04

\$556.80

F. F. SIMPSON, M.D., Treasurer,
704S Jenkins Arcade Bldg.,
Pittsburgh, Pa.

APPOINTMENTS.

HARVARD UNIVERSITY.—At a recent meeting of the corporation, the following appointments were made in the faculty of the Harvard Medical School for the academic year beginning September 1:

Dr. John L. Morse, associate professor of pediatrics, has been made full professor; Dr. Frederick T. Lewis, assistant professor of embryology, has been appointed associate professor; Dr. John Warren, assistant professor of anatomy, has been made associate professor; Dr. John L. Bremer, assistant professor of histology, has been made associate professor; Dr. Francis W. Peabody has been appointed assistant professor of medicine.

NOTICES.

HARVARD MEDICAL SOCIETY.—*Historical Club Meeting* in the Peter Bent Brigham Hospital Amphitheatre, Tuesday evening, November 2, 1915, at 8.15 o'clock.

PROGRAM.

Nathan Smith,	Dr. F. C. Shattuck.
Nathan Smith's Essays on Typhus	Dr. H. A. Christian.
Nathan Smith's Essay on Necrosis.	Dr. W. T. Councilman.

Medical students and physicians are cordially invited to attend.

ERNEST GREY, Secretary.

CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, November 11, 1915, at 2 p.m.

Candidates, who must be residents of the Suffolk District or non-residents of Massachusetts, should make personal application to the Secretary and present their medical diplomas as least three days before the examination, between the hours of 4 and 5 p.m.

DAVID CHEEVER, Secretary.

355 Marlboro St., Boston.

RECENT DEATHS.

The deaths of ARTHUR ERNEST GILLARD of Lowell Mass., June 9, 1915, and CHARLES ARTHUR DERRY, of New Bedford, Mass., March 30, 1914, have been reported, but data as to place of death, age, etc., are lacking. They were Fellows of The Massachusetts Medical Society.

The Boston Medical and Surgical Journal

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Address

MEDICINE—A PROFESSION OR A TRADE.*

BY HUGH CABOT, M.D., BOSTON,

Assistant Professor of Genito-Urinary Surgery,
Harvard Medical School,
and
Chief of Genito-Urinary Department, Massachusetts General Hospital.

MEDICINE has always been regarded as one of the learned professions, and indeed this is a distinction of which we are particularly proud. But the tendency of a profession to degenerate into a trade is ever present, and is a danger from which more than one learned profession has been unable to escape. If Medicine is to avoid the downfall which has overtaken the Law it will be because we are more conscious of the dangers or more alert to check at the beginning undesirable developments. It is for this reason that I make no apology for calling to your attention some tendencies in the development of modern medicine which seem to me fraught with danger.

At the outset of any discussion of the professional or trade aspects of medicine, we shall do well to define our terms.

To me a profession is an occupation requiring an education in science, and which is pursued

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for its own sake. It must have the advancement of science or the benefit of mankind as its chief end, pecuniary advantage being always a secondary and subordinate consideration.

A trade, on the other hand, is an occupation which is pursued chiefly, though not wholly, for the purpose of acquiring wealth; this wealth, with its ability to advance the interests of the individual, being the chief end.

In estimating the importance of any development in medicine we can best do so by comparing present conditions with those of the past. The changes which have taken place and the effect which they have produced upon the prevailing type of practitioner stand out clearly if we look back and picture to ourselves the type which was looked upon as the highest twenty years ago and compare it with the best that we are producing today.

The "big men" of twenty years ago, had without exception, gone through the school of general practice and had risen from the ranks to eminence by sheer force of character, being largely without assistance of the laboratory, and having fewer instruments of precision than we possess. They had trained their faculties of observation in the hard school of experience and had come to rely far more than we do today upon their individual judgment, unsupported by clearly demonstrable fact. They were more astute judges of men, with a larger comprehension of the strength and weakness of human nature and a wider sympathy. They were characterized by a certain boldness less seen today, bred of the necessity of staking their reputa-

* Delivered at the meeting of the Mississippi Valley Medical Association, Lexington, Ky., Oct 20, 1915. Simultaneous publication by courtesy of the *Lancet-Clinic*.

tations upon much less certain evidence. They seem to me to have been broader-minded, and rather more in touch with affairs other than those of medicine. Their devotion to the ideals of medicine I believe to have been more profound. Upon this latter point we have the direct testimony of a great surgeon in a lecture delivered nineteen years ago this month. Among other things he said:

"Medicine is the noblest of professions and the saddest of trades. As a trade it certainly is a very sad calling. . . In all other ordinary business trades the young man who is entering upon them advertises himself in some way; the doctor cannot advertise. . . He cannot sue others very well for his debts. . . because that savors of oppression. It is the taking advantage of other people's misfortune; it is taking advantage of their sickness and their weakness. . . The doctor, you must bear in mind, has to carry the burdens of all sick people; he is their friend, advisor and counsel, and if you look at it from a plain business point of view the fact must remain that this must be counted as a somewhat discouraging feature. . . Ours is the noblest profession that exists. It is above all the most humane; it cannot be otherwise; we seek daily and give our lives to make people happier, to make them better, to alleviate their suffering in every possible way."

This fairly expresses the ideals of the best type of practitioner developed under the conditions which existed a generation ago, conditions which developed character, which involved the ability to judge men, to make sound deductions from a study of character, and to come to a decision and act upon it as the result of weighing probabilities, not facts.

Since that time enormous advance has been made in every field of science as related to medicine. What we may broadly call "the laboratory" covering the fields of chemistry, bacteriology, pathology and physics,—has broadened the scope and increased the accuracy of medical diagnosis. Instead of being required to weigh probabilities we are today able to assort facts. Judgments of character have given place to assortments of data, and whereas the practitioner of a generation ago was profoundly influenced in his decisions by his study of the individual, the consultant of today may almost arrive at his opinion without ever seeing the patient. The amount of technical knowledge required of the physician today is enormously greater than was required of his predecessor, and it cannot successfully be denied that he is far more likely to arrive at a just appreciation of the facts.

With this advance, however, has gone the necessary division of medicine into specialties, a division which the rapid accumulation of knowledge has rendered inevitable, and this has sounded the death knell of the general practitioner.

His place has been taken, or rather is occupied, by the medical group, an aggregation or conglomeration of specialists, who having pooled the results of their investigations, are able with great accuracy to come to a diagnosis. These groups have developed either around the hospital as a center or around some individual, who, finding that medicine was growing away from him, has surrounded himself with assistants and associates equipped with special knowledge.

In its most finished form the medical group is represented by a hospital with medical and surgical chiefs, chiefs of special departments, and under each the necessary subordinates, but this development has been reached only by a comparatively small number. In a less obvious form, however, the principle is very widespread. Almost every internist or surgeon of large practice is in fact the head of a group, only it is unorganized and unnecessarily expensive. Each has an aurist, an oculist, an orthopedist, a dentist, a roentgenologist, a chemist, a pathologist, a serologist, who examines his patients, and on whose collective opinions his own diagnosis, prognosis and treatment must rest. Each one of us is a part of some more or less informal group, though the cohesion may be so loose as to more or less obscure the fact. This tendency to grouping is becoming more marked and the groups more formal.

There can be no question as to the efficiency of this method of "group medicine" in arriving at an accurate diagnosis and there can, I think, be no question of the necessity of such grouping in the successful development of scientific medicine. We may and do regret the disappearance of the well rounded general practitioner, but we must acknowledge the limitations of the human mind, and so bid him an affectionate farewell. We shall, however, do well to remember that this development carries with it certain serious disadvantages, the effect of which upon the type of practitioner developed may well be profound. "Group medicine" means diminished personal relation with the patient, less comprehension of character and personality, increasing probability of impersonality in the relation; in a word, the group tends to become a machine. Should this occur, the individual becomes a cog. Furthermore, the development of group medicine, with the increasing subdivision of medicine, has enormously increased its expense. Such groups require vastly more income than did the general practitioner whose place they have taken. It is this increase in the expense of medical practice which has fostered the growth of scandalous advertising, fee-splitting and the general exploitation of patients for money.

These are but the evidences of the development of the trade aspect of medicine, since all of them are not only proper but necessary in the conduct of any well organized business. Busi-

ness ethics require the giving of commissions to those who send trade. Business development requires advertising; business judgment requires that discovery be developed for the benefit of the discoverer. The increasing impersonality of group medicine makes the acquisition of the business point of view more easy. With the loss of the personal relation, the impropriety of taking advantage of the misfortunes of others slips into the background, while the necessity for maintained income from which to pay salaries becomes increasingly evident. A group must almost of necessity be managed upon a business basis. Salaries, if agreed upon, must be paid, and whereas the practitioner of former times had to think only of himself and of his family, the responsible head of a group must think of all the subordinate members of that group and of their families.

If it be a fact that most medical groups which have reached prominence in this country have been built up by advertising and fee-splitting, it is not so much a wonder that this has occurred as that it has not been absolutely universal. In the transition between individual medicine and group medicine this problem of income has pressed for solution and has been solved most easily by the adoption of business methods which require advertising and commissions.

We shall do well to look these facts squarely in the face and to decide as promptly as may be whether this development of group medicine is the logical method and if such be the case to lend it not only our support, but our criticism. It must be perfectly evident that the individual who undertakes to combine in his own person all the functions of the members of such a group will inevitably fail and that the replacement of the general practitioner is already complete for such portions of the country as are thickly populated. We shall do well also to recognize that this development seriously threatens the professional character of medicine and that unless it be carefully safeguarded the professional character will be lost. For my own part, I am entirely convinced that the group must take the place of the individual and that the possibility that medicine will be converted into a trade can be avoided by clear recognition of the danger.

We shall doubtless be tempted to ask whether such a system of medicine tends to develop men of a calibre equal to their forefathers; and whether this business organization tends to develop as high a type of practitioner. The answer to these questions is of course difficult, for certainly it will tend to develop an entirely different type. More and more the heads of these groups will become experts like any other business expert and likely to hold a similar position in the community. The "big men" in medicine will be more like the big men in business. They will cease to be the guide, counsellor and friend of the individual, but may perhaps

become the guide, counsellor and friend of the community. Their present position in the community will probably be lost, but they may acquire another, perhaps better suited to modern conditions. Since the development of medicine has made it impossible for them to do justice to their patients without much assistance from others, they must be content with their altered relation, but this change does not require the abandonment of the ideals of a profession and the assumption of the character of a trade. It is wise, however, to appreciate that the scale is narrowly balanced and may readily tip in such a way as to spill its contents from a profession into a trade. If this is to be avoided it must be by a willingness to face the facts and deal with them. The chief difficulty lies in providing a proper income for the support of these medical groups. At the moment it is being provided by a competition which has many dangerous possibilities. Competition is the essence of growth, but competition may be of more than one kind. Competition in a trade is, grossly speaking, for a money reward; competition in a profession is for scientific achievement. If competition in medicine is to be for both money and scientific achievement then money may well gain the upper hand. Competition between medical men for money when lives are in the balance is intolerable, and yet no one of us can honestly deny that such competition today exists and that it is at the root of most of the worst tendencies against which we have to strive. If medicine is to remain a profession this competition for money must cease.

Now if we are to remove from the field of medicine this undesirable kind of competition then all practitioners of medicine must be paid salaries, and the amounts of these salaries must be determined by persons having no personal interest at stake. This means, reduced to its simplest terms, that we have a choice between the taking over of medical practice by the state or the management of medical practice from institutions or hospitals as a center. In either case, salaries must be paid to all, and the temptation to practice medicine for money must be eliminated as a possibility. The choice between state medicine and hospital medicine must be determined ultimately by the peculiarities of the civilization concerned. Personally, I have an abiding dread of state medicine in a democracy, because of my recognition of the essential inefficiency of democracy. Whatever may be the beauties of this form of government, efficiency is not among them, and though I quite realize that it is possible to worship efficiency as a goal to far too great an extent, I also recognize that inefficiency in medicine may well prove a fatal defect. I cannot construct any theory of state medicine in a democracy which does not appear to me likely to ruin not only the democracy but medicine. I therefore look forward to the development of group medicine with the hospital

as its center, such hospitals to be under the management of trustees, who, it is to be hoped, will take their duties much more seriously than do most trustees of today.

It will probably be objected that this will involve the treatment of all patients in institutions but this will not of necessity result unless it be thought desirable. There is no substantial objection to the hospitals' staff making visits at any reasonable distance without loss of the important advantages of medical grouping. It does not even seem to me impracticable to conduct country practice in sparsely settled districts upon a hospital basis. It would seem to me entirely feasible to use the towns and smaller cities as centers from which medicine should radiate. The younger members of the organization would do the work in the outlying districts, living there if necessary, but always keeping in close touch with their hospital center, and being promoted as experience and opportunity should dictate. It would thus come about that the younger practitioners would have thrown upon them the more laborious work, while the older members of the group would occupy the positions requiring rounder judgment and fuller development but neither the activity nor the enthusiasm of youth. We might in this way preserve all that is best in competition for that scientific achievement. We could undoubtedly permit the development of individuals along the lines best suited to their peculiar capacity, and get from each what he was best able to give. We should avoid the scandals of inhuman charges and of indecent exploitation of suffering humanity by the sharks of the profession, and we might well avoid the tragedy by which the impious young doctor must select general practice, for which he is ill equipped, because he cannot afford to devote himself to the pursuit of pure science, for which he is best fitted.

I cannot leave this subject without admitting that I am not unmindful of the undoubted defects of the system which I have just described. I do not for a moment overlook the danger that we may come to regard efficiency as a god, that we forget that the individual is a patient and think of him only as an instance of disease. I am not unmindful of the danger of losing that broad culture which was developed in the physicians of the last generation. But these dangers seem to me largely avoidable if clearly appreciated. I cannot doubt that the pursuit of science will always bring out inherent qualities of greatness. I cannot doubt that the care of the sick will always develop the humanities and I cannot doubt that a profession which has for its sole aim and object the mitigation of the sufferings of mankind will attract to itself men with the same inherent possibilities for greatness that have always characterized the followers of Aesculapius.

Original Articles.

LATE RESULTS OF OPERATIONS UPON HIP JOINTS FOR HYPERSTROPHIC ARTHRITIS.

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TWENTY patients from the orthopedic service of the Massachusetts General Hospital were asked to return for observation upon the late results of operations on their hips. A few could not be found, some lived at too great distances to return, one had died, and only nine finally were seen.

This small number, nine cases, however, is convenient for indicating some of the possibilities of surgery in these social conditions, and the cases will be reported individually as well as in a group. The various circumstances associated with the cases also will be discussed, for benefits of operative interference can be judged most correctly by taking into account the different elements that enter into the background of each surgical picture.

These patients can be described as presenting either (a) monarticular defects or (b) polyarticular ones with marked hip involvements.

(a) Monarticular processes very frequently appear to be excited by definite traumata.

(b) Polyarticular lesions occur after numerous infections and chronic metabolic defects, but in this paper only the residual joint changes that remain after all active processes have entirely subsided will be considered. Exact natures of these residual effects are obscure as they usually represent combined results of a number of factors. All, however, are characterized by more or less overgrowth of bone around the joints, and local hip conditions with their surgical treatments therefore will be given greatest prominence in this paper.

Ages of patients range from young adult life to old age, the majority having reached or having passed middle age. They all present painful, stiffened, damaged joints with marked degrees of disability; and crippling disability is the deciding factor in every case that determines the time for surgical interference.

Two important varieties of operations have been performed: Firstly, removal of small bony prominences around acetabula and heads of femori in hip joints still fairly normal apart from these protuberances; and secondly, more extensive operations in disabled hips. There are two subdivisions of extensive operations, namely (a) arthrodeses intended to secure firm union and complete stiffness of the joints in most desirable

positions; and (b) decapitations of femoral heads in order to allow increased, though limited motion at the sacrifice of some stability.

Cases in which removal of small, isolated osteoarthritic prominences is possible with very distinct benefit are not numerous. The ordinary bony overgrowth, even though extensive, as a rule does not interfere materially with the amount of motion of the joint, as it usually permits as much motion as damage within the joint and in the more or less affected capsule will of itself allow independently. In a few instances, however, overgrowths are so located, under the Y ligament for instance, as to mechanically limit certain motions. Removal of these sharply localized exostoses under these conditions leave affected joints in greatly improved functional states.

The choice of extensive operations often is quite difficult and they should never be thought of until practical disability is nearly complete. In making decisions the following points have to be kept in mind:

(a) The nature of the arthritic process, whether it is a part of a general systemic disease or the residuum of a toxic state that has entirely disappeared.

(b) The involvement of other joints, particularly in the opposite leg.

(c) The degree of disability in its relation to the patient's occupation, social standing and habits of life.

(d) Age of patient.

It is natural that judgments should vary according to social conditions of patients. The working poor will frequently arrive at disabled stages much earlier than sedentary well-to-do people. In the former, relief by operation often becomes a necessity, which in the latter will always remain a choice of expediency.

In multiple arthritis extensive operations are reserved particularly for residual disabilities in which there are reasons for feeling that further progress will not be probable. The existence of multiple joint involvements seriously complicates operations when the processes involve both hips or both knees, or one hip and the opposite knee. In the end, however, in all cases degrees of disability are the deciding factors, and the most important element in disability is that of pain, particularly pain following use. Extensive operations are not to be considered in active nor even in doubtful stages of infections, nor in any steadily progressive lesions.

There are two operations of choice in severe cases, as already stated. Excision of the head of the femur leaving the acetabulum with its lining cartilage intact is designed to retain motion in the hip, although resulting in a somewhat less stable joint for standing or walking. Arthrodesis of the hip joint with removal of the cartilage from acetabulum and femoral head, gives increased stabil-

ity in standing and walking as a result of the complete stiffness which follows, but with greater inconvenience in sitting. Arthrodesis must be considered a final operation, whereas excision of the head of the femur may be followed later if necessary by an arthrodesis.

In the choice between the two, the social status of the patient again is a matter of very great importance, and before decision is made there also must be thought of: (a) the integrity of the acetabulum; (b) the amount of capsular contraction and thickening which diminishes the intracapsular cavity of the joint; (c) the amount of osteal change of the neck of the femur; and (d) the age of the patient.

Limited degrees of motion always are desired after decapitations of heads of femori; and it is doubtful if more than 35° is desirable in any case, for the reason that greater excursion produces greater mechanical irritation with resultant greater tendency toward further bony changes. Finally, it should be distinctly recognized that removal of offending bony overgrowths and surgical treatments do not terminate always underlying pathological processes which have produced the hypertrophic defects. The latter may continue at times and very gradually limit again motions in operated joints.

GROUP STATISTICS.

The ages in the nine observed cases have ranged from 29 to 57, with an average of 35 years. Three are women and six are men. Five of the persons are at work at present, on an average time of three years and three months after operation, varying within the limits of two years and two months to four years and nine months. Four are fairly comfortable and able to get around with canes or crutches, and none are completely helpless. Among the four who are not at work two were favorably enough impressed by their surgical experiences to come back for a second operation upon the other hip joint, having been as much pleased with the first results, as the five active ones now are with their respective treatments. One chronic hip in the series proved to be tubercular and required two trials for immobilization. It is firmly ankylosed now and the patient walks with a cane.

It is difficult to obtain a clear idea easily of the actual benefit derived from operations in these cases as the patients never can be extremely active, vigorous individuals again, although perfect surgery is practiced. They show before operation already the effects of serious wear and tear of life and these effects cannot be entirely removed. An illustration is given in Case 1, a man of 57 who now has a hip with 30° of flexion, complete extension and 15° each of adduction and rotation seven years after surgical interference. He has very little pain now, and this late result though far from perfect, represents nevertheless, a more useful joint than the painful one with which he came for treat-

ment. Seven years of relief from pain alone is a considerable benefit.

All nine patients who returned for observation had suffered severe pain before their admission to the hospital and all were more or less relieved from this symptom after surgical care. This fact alone should possess considerable weight favoring surgery, apart from any relief of existing anatomical defects.

NON-OPERATIVE MEASURES.

The present paper deals mainly with late results of operations but the pre-operative histories indicate in a general way what human natures will endure before patience is lost, and relief from suffering and disability is demanded through radical surgical measures. On an average in the nine cases reported, surgical interference occurred four years after onset of symptoms, ranging from eight months to eleven years, depending on severity of pain and degrees of disability. During the periods before operations patients received hydrotherapy, medico-mechanical treatments, immobilizations in plaster casts, foot plates, crutches, diets and internal medications. Four received hydrotherapy, one having 39; one, 10; one, 13, and the other person 12 treatments. Four received mechano-therapeutic measures. Special diets were prescribed frequently, once with obvious success; and medicines were given rather sparingly.

The minute details of these various non-operative therapeutic procedures are too tedious to be reported, yet upon their correct prescription depend results to important degrees. For example, when patients are given massage and local stimulating exercises which produce too great local irritation, these individuals then come more quickly to operative stages than they would otherwise; but it is to be remembered that many persons who have mild hypertrophic conditions never come to operation because some of them find relief in the same mechanical measures and immobilizations that aggravate others. Diet regulations undoubtedly have important influences upon articular conditions, but it must be admitted that we prescribe our non-operative treatments unskillfully quite frequently in the absence of reliable delicate indicators of their actions. When physicians are unsuccessful or when diseases are unusually obstinate, sooner or later, patients become weary of all measures which do not afford relief in a reasonable length of time, and they turn then to orthopedic surgeons.

After-care of surgical cases belongs in a class similar to pre-operative treatments, being very important yet frequently very difficult to regulate. An illustration is furnished by Case 1 of this series. One leg of this individual is in good position and is a useful member after prolonged care, while his other leg is comparatively useless following equally good surgery.

under identically the same variations in health.

The second result seems due, in part at least, to the patient's neglect in after treatment. Apparently he exhausted his patience in the long physical therapeutic courses following the first operation, because he did not return for several years to the hospital after his second surgical experience. It is an injustice to attribute the poorer results of the second operation to surgical causes when they more properly represent the limitations of human perseverance.

SUMMARY.

The nine reported cases represent four arthrodeses, one decapitation of the femoral head, three cheilotomies, and one arthrotomy for a loose body.

Results of the four arthrodeses are as follows: Three patients were actively at work at the time the last observation was made on them, and the fourth person was improved in health. One, a sea captain, returned to work in six months after operation and was still occupied in this way three years afterwards. The second, a laborer, returned to work in five months and was employed thus after four years and nine months. The third, a woman, was working in a lodging-house three years and eleven months after surgical interference, having been able to return to an active life in six months. The fourth patient, also a woman, was much improved in general health when last seen four years after her first surgical experience; but although she could walk without a cane she had not recovered enough from her long difficult convalescence to handle her stiffened hip perfectly.

The result of the decapitation of the femoral head represented some improvement. The patient, a laborer, was in good health after two years and two months, and could walk about his home as much as he wished without pain—with the aid of a cane, but he was not engaged in regular work. The three cases in which diffuse exostoses and bony lips were removed from hip joints (cheilotomies) varied considerably in their success. One, a teamster, was at work two years and ten months after operation, having begun again seven or eight months after leaving the hospital. The other two patients had both hips operated on, and neither had resumed his former occupation. One of the two could chore around home and did not need a cane except in the street. It is a question whether he would not have received greater benefit by an arthrodesis on one hip. The last observation was three years and five months after he left the hospital. The third cheilotomy case was operated on twice and walked with a crutch and a cane seven years after his first operation. At this last observation which was made he was in fairly good general health with much less hip pain. The first joint of his which was treated was still quite serviceable, while the second one was neglected by

him in its after care so that it was badly rotated outwards at the last examination. This case, the oldest of the series, originally had marked changes in both hips and had been disabled for two years. His efficiency was increased by surgery but not to the point of work, and the main benefit has been in relief from pain.

The one case of arthrotomy for removal of a loose body in the joint probably had a traumatic origin, and at operation the joint did not show many other pathological changes. Complete relief followed removal of this body and the patient could walk easily and painlessly when seen after two years and one month. She then was looking for work.

In conclusion it can be said that the choice of operation should be made with great care, dependent on the amount of destruction, the number of joints involved, the social position of the patient and the kind of work which afterward will be demanded of the joint. Efficiencies of patients may be expected to be increased and the pain relieved by surgery. None of the patients have been made worse by surgical interference and it accomplishes enough to justify itself in those cases which have become seriously disabled, by simply relieving continuous pain, or in quickly stiffening some joints to useful positions, or in prolonging their functions and activity. Surgery does not remove the tendency to continued overgrowth if the source of infection in the multiple arthritis cases is not removed, but there is much less tendency toward recurrence in monarticular traumatic cases.

INDIVIDUAL CASES IN DETAIL.

CASE 1. E. W. Well-developed man of fifty years. Stevedore. Both hips operated on, the second one five years after the first, at the age of fifty-five.

In the left hip at operation a small piece of bone was found on the acetabular margin that interfered with motion and this was trimmed away. There was a small amount of clear fluid in the joint cavity, and the head of the femur was dotted with small rough granules on its articular surface. After recovery much improvement in range of hip motions was noticed immediately, then progressive hypertrophic processes very slowly limited these motions again. Before operation flexion was slightly limited, complete extension was possible with no hyperextension. Abduction and adduction were one-third normal. Pain and crepitus were noticed on motion. Seven years after surgical interference, flexion through 30 degrees was possible with complete extension and with abduction, adduction and rotation each of 15 degrees. At this last observation there was very little pain that previously had been complained of, although joint crepitus persisted.

In the right hip at operation the capsule of the joint was found thickened and hypertrophic processes distributed on the femoral head. The articular edges of acetabulum and head were curetted and smoothly trimmed. Before operation the right hip was permanently flexed 10 degrees, with passive flexion of 55 degrees, and with no inward rotation. It was held in outward rotation and there was pain on motion. Shortly after operation complete ex-

tension was possible, flexion of 40 degrees, abduction of 10 degrees.

Pain on motion disappeared quickly but inward rotation still was impossible. Two years after operation there were a few degrees of permanent flexion and 25 degrees of passive flexion but this was also necessarily accompanied by abduction of the thigh. Rotation was possible then between limits of outward rotation of 35 degrees and 80 degrees; and there were slight hip pains on motion.

The patient came to the Massachusetts General Hospital first complaining of nipping pain and creaking in both legs of two years' duration and gradual onset. He had never had any serious illness, had eaten heartily and drank alcoholic stimulants freely for years but not to great excess at any one time. Hypertherapy first was tried for two months then the first operation was advised. Following it, but previous to the second one, prolonged courses in hydrotherapy and mechano-therapy were received. Pains in the operated hip subsided during this interval while simultaneously symptoms in the right hip gradually increased up to the time of the second operation. After the second surgical interference he was not heard from for two years, having become tired of the frequent visits to the hospital necessary for physical therapy.

When last observed he was walking with crutches, the right leg too much averted to be useful. His general health and muscular strength, however, were still good although he had been unable to perform the active duties of stevedore since the onset of his trouble.

CASE 2. L. W. Well developed man of fifty-three years. Sea captain.

The right hip was found at operation to have the joint capsule bound down obliterating the joint cavity; also the muscles about the joint showed evidences of chronic inflammatory process. A wedge-shaped piece of bone was removed from the head of the femur; and the acetabulum after curettage was allowed to unite firmly with the head of the femur.

Before operation the thigh was flexed at ninety degrees and adducted forty-five degrees. Muscle spasm held the hip nearly rigid, but under ether there was a relaxation to forty-five degrees of flexion and ten degrees of permanent adduction.

Three years after operation at the final observation the thigh was firmly ankylosed in fifteen degrees of flexion, ten degrees adduction, with the foot pointing nearly straight to the front. He then continued to work as captain of a steamer, had no pain, used no cane, walked with a slight limp and was in good health.

The original trouble came from septicemia which developed after an injury to the thumb. During convalescence from this poisoning the hip became involved and continued to become inflamed at intervals for a year's time until he finally came to the Massachusetts General Hospital. Six months before the hip joint was opened the adductor muscles were tenotomized and the leg held straightened in a spica, and during this period the patient gained twenty-five pounds, recovering nearly completely his healthy vigor.

CASE 3. A. J. Well developed man of fifty-one years. Laborer.

The capsule of the right hip joint was found thickened at operation, and nodules were cut away from the neck of the femur. An exostosis, size of a

marble, was removed from the trochanter. Cartilages of the hip joint were normal.

Before operation the patient had a limp, showed marked lumbar lordosis and walked without crutches. His leg was held in a position of permanent flexion of 15 degrees with considerable permanent outward rotation, also there were 45 degrees of flexion without adduction or abduction. The thigh and calf muscles were much atrophied.

Two years and ten months after operation the thigh was held normally extended, and there were 10-15 degrees of flexion but without rotation or adduction. He had gained in weight, thought his operation a benefit, and was able to work driving a water cart. He used a slender cane part of the time to favor the leg, and found that a laborer's work of continuous shoveling of dirt tired the hip.

The onset of hip symptoms originally began suddenly eight months before surgical interference, and there had been no severe trauma. For four or five months at first he was treated with rheumatic remedies, but steadily grew worse and then came to the Massachusetts General Hospital. X-rays taken there showed very definite hypertrophic overgrowths and an operation was soon advised. For five months after dismissal from the hospital ward, following operation, he returned at intervals for baths and medico-mechanical exercises. These he considered helped him considerably in regaining strength and motion in the leg.

CASE 4. S. P. Small woman of twenty-nine years. X-rays showed considerable destruction of the head and neck of the femur and the joint was opened. Several pieces of loose bone were removed, and the acetabulum was curetted and chiseled to fit the upper end of the femur. The wound was closed and a plaster spica applied. A second operation became necessary on account of mobility and pain two years later. Then an old sinus below the trochanter was curetted and fresh surfaces were made in the joint, so that solid union was obtained ten or eleven months after this second attempt.

Before operation the hip was held in 30 degrees permanent flexion, 20 degrees adduction and 10 degrees outward rotation. Motion of 10 degrees was possible with pain.

Four years and three months after the first surgical interference the patient walked with the leg solidly fixed in permanent flexion of 25 degrees, adduction of 10 degrees, and with very little discomfort aside from a slight stiffness at first on attempting to walk.

She originally had had hip trouble as a child and had worn a high heel. Two years before coming to the Massachusetts General Hospital she slipped and strained the joint, and then developed increasing pain and local tenderness up to the time of surgical interference. Examinations of the pathological tissue later showed this case to be a very chronic tubercular hip.

CASE 5. P. D. Healthy-looking man of fifty-seven years. Laborer.

At operation the rim of the acetabulum and the edges of the articulating surface of the femoral head presented abnormal bony overgrowths and these were removed. The articulating portion of the head was cut away considerably.

Before operation the thighs could be separated only eleven inches between the femoral condyles. The left hip, which was treated surgically, was nearly

completely extended but hyperextension was impossible. There were 45 degrees of flexion which was painful as the limit was reached. Internal and external rotation were both limited.

Two years and two months after operation the leg was held completely extended, and exhibited 5-10 degrees of flexion. There were 5 degrees of permanent adduction and 55 degrees of eversion. Adduction, abduction and rotation were absent. Shortening of $1\frac{1}{2}$ inches. No pain was noticed.

The patient had been troubled five or six years before coming to the Massachusetts General Hospital. X-rays showed marked hypertrophies of both hip joints and operation was soon advised. He received nineteen physical therapeutic treatments during the three months following his dismissal until the last observation was made. At the last observation he was in good health, used a cane, and walked about his home as much as he wished.

CASE 6. J. L. Small man of fifty-three years. Salesman.

X-rays showed many pathological changes in both hips, and both hips were opened, an interval of four months occurring between the two operations.

The left hip at operation showed a thickened capsule and small amount of joint fluid. The femoral head was flattened and mushroomed. There were large exostoses on the rim of the acetabulum. These abnormal overgrowths were all removed. Before operation the joint could be flexed 85 degrees with pain, and adduction and abduction were somewhat limited. Three years and nine months after operation full extension was possible with 30 degrees of painless flexion. The foot pointed straight ahead and a few degrees of rotary motion were possible. Abduction of 15 degrees and adduction of 5 degrees.

The right hip at operation showed a thickened calcified capsule. The head of the femur was flattened and mushroomed, and exostoses were found around the edge of the acetabulum. All rough nodules were removed. Before operation there was complete extension and 75 degrees of flexion. Outward rotation was difficult and limited to 15 degrees. No hyperextension nor inward rotation. Adduction one-third normal. Grinding pain on motion. Three years and five months after operation there were 55 degrees of flexion, complete extension, outward rotation of 25 degrees, no inward rotation, adduction of 10 degrees and abduction of 15 degrees. Less pain on motion.

The patient had had pain in the right hip for eleven years, and for several years in the left one before operation. Finally the left side became so painful that he could not work and he came to the hospital. Hydrotherapy was tried first for two months, but good effects seemed to be neutralized by exposure to cold after the baths. He carried crutches or a cane for four months after the first operation until the second one; but he wanted the second surgical treatment because the operated hip felt so much stronger and because it had a good range of painless motion. When last seen he considered his operation a benefit, although he had not worked except around home. He did not use a cane except in the street and he enjoyed good health, and had less hip pain.

CASE 7. M. O. Poorly nourished, fairly well developed woman of forty-three years.

At operation the joint cavity was found entirely obliterated. A layer of cartilage and bone was re-

moved from the femoral head, and the acetabulum was curetted and deepened for the denuded head to fit into firmly.

Before operation there were 30 degrees of permanent flexion and 20 degrees of permanent adduction with practically no hip motion and no tenderness in the hip. Three years and eleven months after operation there was solid ankylosis with permanent flexion of 15 degrees and permanent adduction of 15 degrees. The foot pointed straight front. Actual shortening of one-half inch. Apparent shortening $\frac{1}{4}$ inches. No pain. Walked without crutches. Health improved.

The origin of this arthritis was obscure, having come on gradually three years before operation, and increasing until she became incapacitated one year before surgical interference. She thought her operation a great benefit.

CASE 8. D. H. Small woman of thirty-seven years.

At operation a small almond-shaped mass, the size of a bean, could be felt inside the capsule just before it was opened over the femoral head near the cotyloid ligament. When the capsule was cut this was removed, and a sharp ridge on the edge of the femoral head was smoothed away.

Before operation there were irregular snapping and catches in the inguinal region on rising from sitting or kneeling postures, but there was no difficulty in ordinary walking or standing. The hip joint seemed to lock for a moment, and by slowly twisting it the patient was able to restore normal motion again. Flexion was possible to 90 degrees if done slowly. Complete extension was permitted. There was marked limitation in inward rotation and abduction while external rotation was more free. Two years and twenty-three days after operation she walked easily and painlessly with a slight limp. Flexion over 90 degrees was possible with fairly good inward and outward rotation and abdication. General health good.

The hip bothered her for nine years more or less before operation. For a year she tried hydrotherapy and a flannel spica, and finally came for surgical treatment after having become tired of the slow progress, the incapacity, and after x-rays had demonstrated marked lipping of the upper margin of the acetabulum.

CASE 9. J. S. Well developed man of thirty-one years. Laborer.

At operation the capsule of the right hip was found thickened, and the neck and head of the femur were covered with exostoses which were removed. The head of the femur was denuded of cartilage and squared to fit a shelf made in the acetabulum and solid ankylosis secured in twelve weeks.

Before operation all hip motions were painful and rotation limited very much. Four years and nine months after operation there was solid union in a position of 25 degrees flexion, 10 degrees adduction, and the foot was pointed straight front. He carried no cane and had no pain in the joint.

He came to the hospital with a history of rheumatism, tonsillitis and frequent colds, and x-rays showed hypertrophic changes about the hip joint.

THERAPEUTIC VALUE OF INJECTIONS OF WHOLE BLOOD.

BY J. SPENCE DAVIS, M.D., DALLAS, TEXAS.

NUMEROUS articles have appeared in medical literature recommending the use of blood serum in the treatment of various skin diseases, such as psoriasis, pemphigus and the dermatoses of pregnancy.

In some cases the patient's own serum was used while in others it was secured from a second person. In these cases only the serum was used, after being inactivated by heat, but the results of this method of treatment seems to vary greatly in the hands of different observers.

In 1908, Hiss pointed out that the injection of an extract made from leucocytes is capable of producing a leucocytosis. The leucocytic extract was obtained by injecting a mixture of meat broth, starch and aleuronat into the pleural cavity of an animal which is followed by a copious cellular exudate. The leucocytes accumulating in the pleural cavity are removed, mixed with water and kept at incubator temperature until auto-digestion occurs when the extract is put on ice until used. He found that many infections were greatly modified by injections of this extract.

The technic is not so very complicated, but has to be carried out in a laboratory, and besides the yield of leucocytic extract is not very great. Some observers think that the extract thus obtained is not so potent as it might be owing to the fact that the leucocytes are inflammatory leucocytes.

Archibald and Moore attempted to simplify the technic by withdrawing blood from an animal, mixing with a solution of sodium citrate, and separating the white corpuscles by centrifugation. Further steps for making the extract were similar to that described by Hiss. Leucocytosis produced by this extract occurs very promptly reaching its height in a very few hours, to subside to normal in about 24 hours. The greatest increase is in the polymorphs, while the eosinophile increase ranges from 14 to 45 per cent.

Gay and Claypole under the title of "Specific Hyperleucocytosis," point out that injection of immunized rabbits with typhoid organisms is followed by a marked increase of the leucocytes. They point out that this leucocytosis is specific and only occurs when the animal is vaccinated with the same organism to which it is immune.

In tuberculosis the injection of tuberculin is followed by a similar response on the part of the leucocytes, but the eosinophile increase is, as a rule, relatively greater and more constant than that of any other cells. The leucocytosis produced by tuberculin is specific and does not occur in normal individuals. The repeated injection of any foreign protein produces a leucocytosis.

There seems to be some difference in the leu-

leucytosis produced by the injection of foreign proteins and of leucocytic extract made from the animal's own blood. In the former, with a second injection, the eosinophile cells usually are markedly increased; while in the latter, it is the polynuclear variety which has the greater increase. It seems probable that the leucocytosis produced in all the above mentioned conditions is due to the fact that we are either injecting a foreign protein or an extract of a protein.

On the account of the difficulty of obtaining leucocytic extract according to the original method of Hiss we attempted to use an extract made according to Archibald and Moore.

Injections of this extract in normal persons increase the leucocytes a moderate degree, but frequently, in the presence of an infection, it produces no demonstrable effect. With the view of obtaining such a leucocytosis we decided to try the effect of whole blood. This was begun about a year ago. Blood examinations were made before and after the injections. The effect noted on the blood is the same as that produced by injections of leucocytic extract, viz: The leucocytes are rapidly increased, sometimes to 500 or even 600%. The increase reaches its height usually in about six hours, but instead of going back to normal in 24 hours, it is apt to persist for two or three days. The physical condition of the patient also seems to be a factor in the time and the amount of response to the injection.

One of the tables shows a case of diabetes which even after 20 injections of 40 c.c. of blood each time, showed only a very slight increase in the total count. A great many times the height of the leucocytic curve would not be reached in six hours but would be delayed for 12-24 hours. In the presence of infection, the leucocytosis persists even beyond the 24 hours, but occasionally in the presence of severe infection the leucocytosis does not occur until after two or three injections, in which case, the response may be greater than would be expected from a single injection. As a rule eosinophile cells are not so markedly increased as they are in anaphylaxis but the polynuclear cells are practically always increased both absolutely and relatively. Sometimes the polynuclears are increased without any actual increase in the total cell count, in which case the increase in polynuclears is accompanied by a decrease in small lymphocytes. This is not the only effect which is observed. In many cases of infection, a crisis seems to be brought on, the patient having a profuse perspiration and marked fall in temperature. At times it has considerable pain-relieving properties, and is of great value in the treatment of infectious arthritis. The pain is sometimes greatly relieved, even when the leucocytes are not markedly increased, while at other times, even though the leucocytes are enormously increased, pain is not relieved, and the clinical condition of the patient is not improved.

TECHNIC.

Blood is withdrawn by a 20 c. c. Luer-glass syringe attached directly to a "Neo Needle." The needle is introduced into a vein of the arm of the donor and as soon as the syringe is filled with the blood, the Neo Needle is removed and a straight needle applied to the syringe and the blood is injected into the loose tissue of the abdominal wall.

Some experiments were carried out to determine how small a quantity of blood would be effective, and if a greater response could be induced by altering the blood after it had been withdrawn from the donor. The smallest quantity of blood capable of producing a noticeable response was 1 c. c., but in many cases this was not sufficient, and larger quantities had to be injected. The increase in leucocytes is not directly proportionate to the quantity of blood injected, and the injection of a pint of blood was found to produce no greater response than three or four ounces.

Any substance which alters the blood after being withdrawn seems to enhance the effect of the injection. Blood which is kept in the syringe until clotting has begun seems to cause a greater response than if it is injected immediately after withdrawal and before clotting has begun.

Normal saline mixed with the blood to be injected does not seem to be of any assistance, but sodium citrate solution mixed with the blood causes it to produce a greater leucocytic response. A number of other substances were tried, but no marked difference between them and the sodium citrate was noted. The pain-relieving properties seem to have some relation to the quantity of blood injected, but the patient's own blood does not seem to have any marked pain-relieving properties. On several occasions we attempted to use the blood of the patient which was withdrawn and reinjected hypodermically. The response is not nearly so great as when blood is obtained from another individual, but if the blood of the patient is changed by admixture of strong sodium citrate solution the leucocytic increase is very much greater.

The blood used for injection has been kept for several days on ice after the addition of a preservative, without destroying its therapeutic value.

TABLE I.

CLINICAL DIAGNOSIS. PNEUMONIA AND EMPYEMA. BABY II. AGE THREE YEARS.

	Time.	Substance Injected.	Amount.	W. B. C.	Poly.	S. L.	L. L.	Trans.	Eosin.
Before injection				15,000	40	27	33		
After injection No. 1	24 hours	Leuc. extract	1 c.c.	10,000	21	39	34	4	2
After injection No. 2	24 hours	Leuc. extract	1 c.c.	11,000	14	15	63	7	
After injection No. 3	24 hours	Father's blood	5 c.c.	16,500	20	44	34	2	
Four days af- ter daily in- jection	4 days later	Father's blood	5 c.c.	19,000	34	44	19	3	
After daily in- jection	4 days later	Father's blood	5 c.c.	36,000	85	12	3		

TABLE II.

CLINICAL DIAGNOSIS. SCATICA. J. C. AGE 63 YEARS.

	Time.	Substance Injected.	Amount.	W. B. C.	Poly.	S. L.	L. L.	Trans.	Eosin.
Before injection				11,500	52	33	10	3	1
After injection	6 hours	Patient's blood	40 c.c.	13,000	56	32	7	3	1
After injection	6 hours	Donor's blood	20 c.c.	15,000	73	17	4	3	2
	24 hours later			12,000	73	24	2		1

This chart shows greater response to donor's blood.

TABLE III.

CLINICAL DIAGNOSIS. HYPERTHYROIDISM AND MULTIPLE ARTHRITIS. M. H. AGE 25 YEARS.

	Time.	Substance Injected.	Amount.	W. B. C.	Poly.	S. L.	L. L.	Trans.	Eosin.
Before injection				6,800	46	48	4	1	1
After injection	24 hours	Brother's blood	40 c.c.	9,800	67	29	4		
After injection	48 hours			7,500	66	28	5	1	
After injection	4 days			8,800	46	48	4	1	
After injection	36 hours	Brother's blood	40 c.c.	8,400	62	33	2	1	2
After injection	3 hours	Brother's blood Sodium citrate 10%	10 c.c. 2 c.c.	7,100	71	26	3		
After injection	24 hours			9,000	72	25	3		

TABLE IV.

CLINICAL DIAGNOSIS. MAL-NUTRITION AND ANEMIA. BABY T. AGE 6 MONTHS.

	Time.	Substance Injected.	Amount.	W. B. C.	Poly.	S. L.	L. L.	Trans.	Eosin.
Before injection				11,000	20	60	19	1	
After injection	24 hours	Mother's blood	20 c.c.	11,400	22	59	17	1	
After injection	48 hours			10,300	32	52	13	1	2
After injection	6 hours	Mother's blood	15 c.c.	9,700	30	66	3	1	
After injection	48 hours			8,200	41	38	1		
After injection	6 hours	Sodium citrate Mother's blood	1 c.c. 15 c.c.	15,000	39	52	8	1	
After injection	6 hours	Sodium citrate Mother's blood	2 c.c. 10 c.c.	17,000	42	54	4		

TABLE V.

CLINICAL DIAGNOSIS. DIABETES AND NEURITIS. J. R. W. AGE 55 YEARS.

	Time.	Substance Injected.	Amount.	W. B. C.	Poly.	S. L.	L. L.	Trans.	Eosin.	M.
Before injection				9,000	72	19	5	1	1	2
After injection	6 hours	Patient's own blood	10 c.c.	9,200	74	17	5	1	1	2
After injection	6 hours	Patient's own blood and normal saline	5 c.c.	10,000	71	19	10			
After injection	24 hours			8,800	69	21	8		1	1
After injection	6 hours	Patient's own blood	10 c.c.	8,700	69	24	7			
After injection	24 hours			6,400	76	17	6	1		
After injection	3 hours	Patient's own blood Sodium cit. 10%	10 c.c.	7,500	79	16	5			
	24 hours later			10,800	77	22	1			

Note greater response to citrate solution.

TABLE VI.

CLINICAL DIAGNOSIS. DIABETES AND SCIATICA. J. W.D. AGE 50 YEARS.

	Time.	Substance Injected.	Amount.	W. B. C.	Poly.	S. L.	L. L.	Trans.	Eosin.	M.
Before injection				7,700	58	34	4	2	2	2
After injection	24 hours	Patient's own blood	20 c.c.	6,800	68	22	6	2	2	2
Before injection				6,000	73	22	2	1	2	
After injection	24 hours	Son's blood	40 c.c.	8,275	83	9	6	1	1	1
Before injection				6,000	69	22	7	1	1	1
After injection	24 hours	Son's blood	40 c.c.	8,600	78	16	6			
Before injection				7,300	66	19	15			
After injection	24 hours	Son's blood	40 c.c.	8,800	79	15	5	1		

Pain relieved in 24 hours but no marked increase of leucocytes.

MASSAGE AND REMEDIAL EXERCISES IN THE TREATMENT OF CHILDREN'S PARALYSSES. THEIR DIFFERENTIATION IN USE.*

BY JENNIE M. COLBY, BOSTON.

Recently Director of the Clinic for Muscle Training of Paralytic Cases, Children's Hospital, Boston.

SINCE, in some types of paralyses the nerves are over-stimulated and in others unresponsive—and in some the muscles are limp and wasted, in others firm and well nourished, it is reasonable to presume a difference in the use of the massage, friction, etc. And since some types lack initiation and others possess normal power of co-ordination that there would be ground for distinguishing between the exercises employed.

Results in my own experience seem to justify this view and I differentiate as follows in applying treatment by means of massage and exercises:—

In the anterior-polio-myelitis cases, where the muscles are limp and wasted and the reflexes absent, the aim is to encourage muscular growth and development, therefore I use kneading of the light, rapid, stimulating form, friction, nerve vibration, all gently applied, and in old cases sometimes—but not habitually—percussion. The kneading and friction I apply to the limb as a whole, the vibration and percussion only locally.

In spastic cases, on the other hand, where the muscles are firm and well nourished and the reflexes exaggerated, I quite reverse my choice of procedures, omitting entirely friction, vibration and percussion, and using kneading in a modi-

* Read before the Massachusetts Therapeutic Massage and Gymnastic Association, Inc., Boston, May 11, 1915.

fied form, viz., applying it with the palm of the hand, using deep pressure and slow movement for the limb as a whole, but being watchful to avoid producing reflex contractions. In the obstetrical arm, conditions in the early stages—usually for the first year—resemble those in poliomyelitis, and the same forms of treatment are applicable,—gentle kneading, friction and nerve vibration—the kneading and friction for the arm as a whole.

As the patient improves the movements can be increased in force and duration until they become the usual form for stimulating muscular development.

In old cases—children of several years—I begin, at once, with the routine massage, friction, vibration and perusion, such as I might use with any old traumatic case.

Passive movements of the joints for these paralytic cases are given for the purpose of keeping the surfaces of the joints in their proper relation to each other. In all old cases in each type there are sure to be more or less deformities, and then each ease and each joint becomes a law unto itself. In the early stages of poliomyelitis and obstetrical paralysis there is a tendency to relaxation of the joints, and, therefore, I feel that it is safer to keep the movements well within the normal range of motion.

I believe that the anterior poliomyelitis type tends to relax whether left to itself or under treatment.

The obstetrical arm (peripheral) steadily improves in this respect, and after a few months will tolerate and even require hyper-extension. To avoid dislocations and yet not allow adhesions to form is a perplexing problem.

For the spastics it is difficult to generalize on the use of passive movements. The cases are invariably old cases when they are presented for treatment, and have deformities which must be considered individually. Frequently, where there are no visible deformities and the overlying tissues seem firm and elastic, there will be an apparent separation of the bony surfaces, which makes it seem unwise to force movement as far as the contracting muscles would indicate. Sometimes the grasp of the operator will aggravate the spasm. Often here and elsewhere the passive movement must be more or less of an assistive movement in order to prevent resistance on the part of the patient.

The question of stretching contractures is really outside the topic of "passive movements of the joints." It often happens that the joint is used as fulcrum with the distal portion of the limb as lever, but it is not always safe, and the exact condition of the joint must be considered before so using it. Sometimes it is better to stretch the tendon between the hands of the operator—when there are true contractures. If the joint is used for the purpose of stretching muscles which are attached to one or another of its surfaces, it must first be so fixed that it cannot move in any other than the desired direction

of motion, and the muscle, or the contracted portion of it, must be pulled in line with its median fibers.

The active exercises offer the largest field for differentiation in applying treatment to these paralytic cases. The poliomyelitis cases need exercises to develop muscular tone rather than coördination of movement. The spastics need those which cultivate control rather than strength of muscle. The obstetrical arm requires both types, but for other reasons.

In treating the poliomyelitis cases I like to use the assistive form of the active exercises, because in this condition the patient apparently sends the first impulse unerringly to the muscle which it tries to move, and if the muscle responds the relationship continues, but if the muscle fails to respond, the effort is automatically and instantly transferred to some adjacent muscle. If, however, the limb is held in an advantageous position, and the first impulse aided to perform the intended movement, the impulse is not as readily diverted, and seems to continue to act upon the right muscle until fatigue occurs. The fatigue can also be detected more quickly through the use of the assistive movement before it becomes exhaustion or the effort is transferred to other muscles. The instant that I feel any sort of flagging I usually tell the patient that he need not try any more, but I go on with the passive form of the movement, and frequently I feel the impulse again at work of its own accord. Even when the patient has the strength to make a few contractions alone or to overcome some resistance, I still prefer the assistive form of exercises for treatment purposes. This method saves putting a relaxed joint into hyper-extension for the beginning of the movement, and proportionately more movements can be used without causing fatigue, on the principle that a larger number of light movements equals a smaller number of heavy ones. The assistive exercises also act more normally upon the antagonists and afford the most convenient way of teaching very little children.

I use very few free gymnastics in these poliomyelitis cases—a little walking, running and dancing, a little practice on the balance-beam, the Sequin ladder and the stairs, but only in order to teach the proper form of doing such things as the patients are attempting of their own accord, not as exercise drill.

For the spastic cases the voluntary coördinatory exercises constitute the most important part of treatment. The aim of the exercises is to develop control of direction, localization and amount of effort put forth. As coördinatory exercises, they should not be of the assistive form except in order to describe the movement. They should be of great variety, of both general and special character.

In addition to the numberless formal gymnastic exercises, all sorts of everyday activities should be employed, e.g. for hands and fingers, buttoning clothes, lacing and tying shoe strings,

braiding hair and picking up articles from the floor or table and placing in a receptacle carried in the healthy hand, and so on indefinitely.

Simultaneous movements for arms, hands and fingers of both sides (paralyzed and normal) are of special value. Besides the regulation "symmetrical gymnastic exercises," the piano, peg board, blocks, crayons, etc., can be utilized. Useful exercises for the lower extremities are stepping over and upon objects, walking in a variety of different ways, dancing, sliding on bare floors, skipping rope, and when safe, skating, climbing and riding velocipede or tricycle.

Even when the muscles are more or less constantly in spasmodic contraction the voluntary form of contraction is desirable because exercising control over the movement reduces the spasmodic activity. The voluntary exercise should be carried to a point beyond that usually maintained by the spasm. Special exercises for the antagonists are obviously in order.

For the obstetrical arm all types and forms of exercises are needed at one time or another. During the first few weeks of life they are necessarily passive movements of the arm as a whole in imitation of the bendings and stretchings instinctively performed by its mate. Later these passive movements merge into assistive movements and the assistance is withdrawn as soon as the child has the strength and knowledge to perform the movements alone. From three months onward exercises demanding attention are important, not for the purpose of cultivating coördination, as with the spastic cases, but to arouse delayed association between the mind and that particular limb, and to localize movements for the purpose of muscular development. After three years of age, exercises for the obstetrical arm may be the regulation gymnastic arm exercises or "shoulder-blade movements," and with the addition of exercises for developing skill of hand and fingers if needed. Attention must be given to the peculiar needs of the individual. To secure exercises of attention from babies and young children requires resort to some aspect of play,—"play educates the baby," and educates the young of the dumb animals, and can and must, in order to procure the most satisfactory results, be used in applying reëducational exercises to little folks. For the tiny baby I have followed the universal custom of attaching rhymes to movements of the body: "Pat-a-cake" for the hands, "thumbkins," etc., for movements of the fingers, "measuring" for the arms, "shoe the old horse," "this little pig goes to market," and so on, with numerous "mother-plays" and "finger-plays." With older, but still little, children I have used the gymnastic movements the effect of which I desired, under some name or with some jingle which appealed to the child's imagination: "See-saw" for arm abduction, "Jack-in-the-box" for knee flexion, etc. Many of these are described in Miss Johnson's and my little book, "Educational Gymnastic Play," and some of the baby exercises

which I wrote out for Dr. Thomas are published in his article on "Obstetrical Paralysis with Especial Reference to Treatment."

Daily occupations can be used as therapeutic exercises, if carefully chosen,—stirring, grinding, weaving, sewing, pounding, digging, etc. Certain toys are also useful, such as a wheelbarrow, toy tether ball and racket, jumping-jack on a string, and many another.

Games of various sorts readily lend themselves to use as remedial exercises, but to be truly educational they must be adapted to the special needs of the case and the individual. The scientific gymnastic movement should be the foundation for the exercise play.

The question of home treatment and activities often comes up. I feel that it is advisable for the poliomyelitis cases to have some gentle massage and friction at home, if there is any one who can do the manipulating tolerably,—briefly, fifteen or twenty minutes only at one time. The person giving the massage should be warned against holding the limb in a position which will stretch relaxed ligaments or increase deformities while giving the treatment. For the spastic cases I say *no* massage or friction *at home* and for the infant obstetrical arm, little, if any, and very cautiously, given during the first few months; after six months or a year I have allowed it, but not required it.

For the home *exercises* I reverse the order,—practically none for the poliomyelitis cases, for the spastics many and varied, for the infant obstetrics very gentle movements at first, many arm activities later.

The poliomyelitis cases, in my opinion, should not be urged to use the affected limb except when assisted. They will do more than they ought of their own accord. The child should have a rest of at least an hour a day, lying flat upon the bed or floor, with relief from all activity of the weak muscles and the drag upon relaxed ligaments.

Since I have acted upon the principle of holding back the recent poliomyelitis cases, I have seen much less deformity in my patients of this class. It requires considerable care to give a child enough normal activity without producing fatigue and deformity, but I feel convinced that for the first one or two years it is distinctly worth while to make the effort.

When the lower limbs are affected, chairs should be low enough, or provided with footrests, to allow the feet to rest flatly, with the knees at right angles and kept from separating. Tables of corresponding height should be supplied. If there is toe-drop, a strap fastened at the toe of the shoe and caught in at the top with the lacing, will keep the child from stubbing its toe and prevent the swinging at the hip, which is so likely to bring on deformity. If the shoe strings of the two shoes are tied together, giving just room for a natural length of step, the child is less likely to walk with stride-gait. The arm is sometimes best kept in a sling at intervals.

The spastic patient should have a great deal of home exercise, should be encouraged to join in the play of the other children, and the activities of the home. The majority of these patients need constant urging, as they are not inclined to use the affected limbs spontaneously. The exact performance of the movement in these cases is of less importance than the effort made, and so the exercises are more easily directed by the mother or other members of the family.

The obstetrical arm patients as infants are often too loose jointed to permit of unskilled handling, but as soon as the joint becomes firm enough to be in no danger of dislocation, the arm should be exercised by the mother, and the baby taught day by day that the paralyzed arm must do whatever the other arm does. Week by week and month by month this teaching constitutes the principal part of the home exercise—the other arm being the guide for progression. The little gymnastic exercises arranged for both arms and associated with some nursery rhyme have a certain value, and the mother usually learns them readily, and applies them with the necessary enthusiasm for holding the child's attention. As with the spastic cases, there must be constant vigilance in having the child use the arm in its play and work year after year if a perfect recovery is sought. The task is, however, far easier than with the other types, because there is less danger of over-doing and but little of wrong-doing. Less watchfulness is required with the obstetric than with the poliomyelitis subjects, and while, like the spastics they need continual urging, there is usually but one limb to consider, and only a few definite movements to require. As the disinclination to use the arm is inattention, rather than true incoordination, it is also more readily overcome.

As regards fatigue: the poliomyelitis patient is easily exhausted, even when the ease is of long standing, and should always be protected against overdoing. The spastic patient is not so susceptible to fatigue, but the fatigue should be avoided as a cause of discouragement, if not as a physical harm. The obstetrical arm subject needs consideration only in regard to age,—the tiny baby must be guarded very carefully, the ten-year-old child may be allowed normal activity.

The frequency of treatment must be governed by circumstances. The interval can be shorter when the child is visited at its home than when it has to be carried to an office or hospital.

Short treatments daily by the skilled operator for the first two years would be ideal.—three times a week gives very good results, twice a week will accomplish something. Less than twice a week I do not care to consider.

Treatment should continue as long as the child responds to it, with occasional interruptions after the second year.

JOSEPH FRANÇOIS MALGAIGNE, 1806-1865.

BY WM. PEARCE COUES, M.D., BOSTON.

AMONG that galaxy of surgical stars which shone on the horizon of France during the early part of the nineteenth century, none are more justly famous than Malgaigne. Perhaps the times of stress and terror through which France had just passed had something to do with the production of men of such indomitable will and determination as that possessed by the subject of this sketch. Most of the surgeons of note in France at this time rose to eminence after toils and privations almost unbelievable at the present time; the love of their profession was so great that nothing could turn them from the distant and arduous goal of their ambitions. When we seek to analyze the character of such men certain facts stand out distinctly. Seemingly common to all, we find a capacity for work and a power to overcome obstacles rarely met with at present. It seems doubtful if many of the great surgeons of the present day could put up with the hardships, privations, and often in the earlier years, actual want of some of the necessities of life, and still keep the eternal fires of genius burning bright. Thus we find Velpeau in his early years, living in Paris on nine sous a day. Fortunately for him and his art, this direful state of affairs did not last a long time. A consideration of the medical training of such men as these brings out another fact, that is, the wonderful grasp of the science of medicine as a whole that was attained in conjunction with the study of surgery. This would be a great aid to many surgeons of the present day; often too prone to fly to the internist for advice concerning matters which it should be their duty to know.

Joseph François Malgaigne was born at Charnes, department of the Vosges, on February 14th, 1806. His father also was a physician, being an officer of health of Charnes and also attached to the sixth regiment of foot artillery. Originally the family was of Italian ancestry, and there was noble blood from the mother's side of the family. The Malgaignes were not endowed with any considerable quantity of worldly goods, and the father's ambition was to have his son obtain a position as health officer similar to his own. This, however, did not by any means satisfy the young man's ambitions and led to a family disagreement later. Young Joseph went to Nancy for the first part of his medical education. From here he writes home a long and entertaining letter concerning his studies, which were rigorous in the extreme; in his enthusiasm and descriptions in this letter we get a hint of what his future accomplishments in medicine might well be. At nineteen years of age he obtained the title of officer of health, but this was not what he wished for in medical attainments, and his determination to go to Paris

to seek wider fields of endeavor and opportunity caused a serious breach with his family. Pilastre tells us that during the youth's early days in Paris he lived on 85 centimes a day and worked in bed on account of the intense cold, not having enough money to buy fuel to heat his poor room. He prepared his own meagre fare and suffered extremely. He managed, however, to earn a small amount by teaching anatomy, and began writing articles for the journals. In 1826 he was chosen a student in the "École Pratique," one of the two great schools of dissection in Paris at that time, with which Velpeau and Cloquet were connected. In 1827 he became externe of the hospitals, and obtained a prize for his dissertation, "Nouvelle Théorie de la Voix Humaine." He finished his medical training at Val-de-Grâce, the military training school, where he obtained a prize which gave him the right of residence in a military hospital.

Soon after this we find him working for stricken and harried Poland. He was attached to the fourth division of infantry, and organized an ambulance of twelve surgeons, which was of the greatest service to the country. Many jealousies and other difficulties had to be overcome, engendered by the attitude of the Polish physicians, before success was obtained. On finishing his work in Poland he returned to Paris and published a memoir entitled "Coup d'Oeil sur la Médecine et la Chirurgie en Pologne."

In 1835 he was made "Professeur Agrégé," and was attached to the celebrated St. Louis and to the Charité. Malgaigne was an accomplished orator, and all his discussions and sayings at the Academy were followed with the keenest interest. Like all great men who have new thoughts and procedures, he had enemies and detractors. It has been said that so keen was his power of oratory that, had he taken up the law instead of medicine he would have been equally successful. During his first struggles in Paris he would repeat, "Patience! the future is long, and it is mine; I will live or die in Paris!" Malgaigne understood the real value of surgical operations; and he was probably the original end result surgeon, saying it was necessary to follow up the surgical cases, to see them at a distant time, and note what deformities or what inconveniences had resulted from operation. In his thesis, written when he was 25 years old, he said, "We have no history of medicine," and again, "Any man, even a genius, who does not see and work for the time beyond his own in medicine, resembles a dotard, living only in each day." Some of Malgaigne's best known works are: "Letters on the History of Surgery," "Anatomy and Physiology of Homeric Times," "Greek Medicine, before Hippocrates," and the "Works of Ambrose Paré." Malgaigne was the first surgeon in France to use ether for general anesthesia; he also was the first to use collodion in surgical work. He

introduced sub-hyoid laryngotomy, first performing it on animals. His many works on fractures were, and still are, authoritative on many points. Perhaps his greatest work, his "Manuel de Médecine Opératoire," was translated into German, English, Russian, Italian, Arabic, and seven editions went around the world. Malgaigne was the author of biographies of Astley Cooper Boyer and Dupuytren; and Pilastre, in speaking of these works, says that they are interesting, not only for the lifelike depiction of the characters studied, but also for the picture they gave of medical science of the times apart from this. In his biography of Cooper, Malgaigne tells the following story: In 1820 Cooper was consulted by King George IV, and in 1821 was asked to remove a wen from the head of the august patient. Cooper was very loath to accept the responsibility thrust upon him and begged Lord Liverpool to persuade the King that Hane was the surgeon to operate, as he was by title Surgeon to the King. Cooper dreaded the occurrence of erysipelas after the operation and that such an occurrence would blast his reputation, as it very likely would have done. He said, "The announcement that I was to operate on the King brought on an attack of vertigo; I felt that my whole future depended upon the result of this operation." The operation was successful despite his fears, and Malgaigne tells us that Cooper was given a present of five hundred guineas, receiving the title of Baronet, and in 1824 was named Surgeon to the King.

Among the personal anecdotes of Malgaigne the story of his controversy with Count de Bernstorff, as related by Pilastre, is of interest. Bernstorff was at that time Prussian Minister to France, and had consulted Malgaigne concerning his health and that of his son. After several visits and consultations on the part of Malgaigne, a servant of the Count appeared at the surgeon's residence with an envelope containing fifty francs, for which he demanded a receipt. Malgaigne, returning shortly, summoned his servant, and dispatched him with the following note to the Count:—

"I have the honour to send to Monsieur Count de Bernstorff, Minister of Prussia, fifty francs which have been left at my house from him. I am sovereign in my art; and it is necessary to observe certain forms with me."

"I beg of you at the same time, M. le Count de Bernstorff, not to mention my name to M. Lawrence, to whom probably a similar alms sent in a similar manner would be no more acceptable."

"Malgaigne."

"29 November, 1855."

Soon after this note was dispatched Malgaigne received a charming note from the Countess de Bernstorff, full of regret and chagrin at the occurrence, which was acknowledged by the surgeon in a graceful note, such a note as only the French can write. The Count called soon

after, but Malgaigne would never accept payment for his services.

Part of Malgaigne's great work was his introduction to the works of Ambrose Paré, which was in itself a complete work on the history of surgery from the Sixth to the Sixteenth Century. This comprised fourteen chapters, beginning with Surgery of the Orient in the Sixth Century and ending with a description of French Surgery in the Fifteenth Century. There was also a special description of the military surgery of the times and the military campaigns. This work placed Malgaigne among the first rank of medical historians of all time.

One of the most interesting events in his career was his controversy with Jules Guerin, the orthopedist, whose results, case reports, and theories were the subject of bitter attack by Velpeau, Malgaigne and other French surgeons of note. Pilastre gives the following interesting facts concerning this historic medical controversy and law suit on the part of Guerin against Malgaigne and Vidal (de Cassis). Guerin was a pioneer in orthopedic surgery, and his editorship of the *Gazette Médicale*, which he held all his life, gave him a wonderful opportunity to put his views before the medical world. He devoted himself passionately to this work, but unfortunately did not always use the tact necessary in giving forth his views. He had obtained in 1837 the Grand Prix offered by the Academy of Sciences by a work entitled: "Dictionnaire Scientifique Rigoureux des Principes Méthodes et Procédés de l'Orthopédie; Sous le Double Rapport de la Pratique et de la Théorie." Perhaps his critics thought that this title "Doth protest too much"; at all events, his views were continually challenged, as is always the case with new theories, and practical application of them, be they good or bad. Guerin was one of those who bitterly opposed Pasteur's theories of the microbial origin of disease. In 1843 began the great controversy with the Paris surgeons in which Malgaigne took such a prominent part. He had combated the views of Guerin in the *Journal de Chirurgie*; here he contested the so-called operative cures of Guerin, saying that the dignity and the morality of the art of surgery was at stake. As a culmination to all this Guerin brought his suit against two of the signers of a letter of protestation against his work and methods. The suit was for defamation and injury, to the amount of 20,000 francs: the trial was held November 14, 1843, all medical Paris, as well as crowds of the laity being present. Malgaigne was acquitted of any culpability in the matter. Unfortunately for the side of free medical criticism, the others Vidal (de Cassis) and Henroz were not so fortunate. Notwithstanding this, the medical profession, as a whole, regarded the trial as a victory for free speech and criticism in medicine.

For a time we find that Malgaigne was interested in political life, being a member of the Chamber of Deputies, but in 1848 he gave this

up and the rest of his life was entirely given over to his medical work.

The manner in which he became a member of the Chamber is as unusual as it is interesting. In the midst of some medical literary work, nothing was farther from Malgaigne's thoughts than politics, when he received a circular of a political meeting urging his presence for the purpose of voting for a new deputy in his district. Malgaigne felt it his duty to go to the meeting. On arriving at the hall he found no one he knew, but after a time two pharmacists who knew him by reputation addressed him. Soon he was surprised to see an officer of the meeting hurrying toward him. He came to ask if Malgaigne would not act as president of the meeting, as there was no one present who could do it as well as the accomplished physician. There were two candidates to be considered, one of whom did not come to the meeting, so that Malgaigne counseled another meeting to give the other candidate one more chance. This seemed to meet the approval of the meeting, and when Malgaigne dissolved the assembly there were many expressions of approval of his conduct of it. Entirely because of his presence at this meeting, and his subsequent popularity among those present, he was himself elected deputy of the fourth arrondissement in 1847. He was a member of various commissions, which had the consideration of questions of medicine, hygiene, and public instruction. The work that Malgaigne did was most valuable, but he could not give up a long time to such political commission activities, and was not a candidate for re-election, plunging again into his surgical work and medical writing.

The 10th of January, 1865, while presiding at a meeting at the Academy of Medicine, he was stricken with apoplexy, and lived only for a few months after this time. Velpeau, in his eulogy of his former pupil and late colleague, said that he considered that Malgaigne was the greatest figure in the science of the times. His labors, Velpeau said, were immense, almost unbelievable. Pilastre ends his interesting account of Malgaigne with the following quotation from Voltaire concerning physicians, taken from the "Dictionnaire Philosophique." The first part of the quotation holds up to ridicule the same type of physician as Molière satirized, but then goes on to say: "It is none the less true that a good physician may be able to save our lives on a hundred occasions, and to give us back the use of our limbs. A man falls in an apoplexy, and it isn't a captain of infantry or a counsellor who will cure him. Cataracts form in our eyes; my neighbour won't remove them. I make no distinction here between the physician and the surgeon; these two professions have been for a long time inseparable. The men who seek to give back health to other men, using the principles of humanity and well doing, are really much above all the greatest and most powerful of the earth. They have something of divinity

about them. To conserve and repair is almost as beautiful as to create." Such a tribute to medicine from the eye of cynics is high praise, indeed, but well merited by such a master mind of surgery as that of Malgaigne.



A SUCCESSFUL TREATMENT FOR ACUTE INFECTIONS OF THE AIR-WAYS.

BY IRVING WILSON VOORHEES, M.S., M.D., NEW YORK,

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ANY acute infection of the respiratory tract, whether it be "in the head" or "on the chest" is conveniently described by the layman as "a cold." Perhaps, now that custom seems to have justified the usage, this is as good a general term as any other. After all, it is not the word, but the *thing*, with which we must concern ourselves.

It is a common observation in esoteric circles that "a cold must run its course." If the truth must be told, there is ground for a lurking suspicion that the profession has not hotly contested this assertion. A well-known professor of therapeutics was once heard to tell his class that "the public does not come to us any longer to be relieved of a cold because it knows that we cannot cure this annoying condition." The profession is now very sure that a cold is something more than an annoyance. It is a real danger, because it may have as a cause the diplococcus of pneumonia or the bacillus of tuberculosis, masked by the micrococcus catarrhalis. A cold is an acute infectious disease and should never be neglected. If its tendency to spread were widely understood, it would doubtless become one of the reportable diseases set down in the Board of Health lists along with scarlet fever and diphtheria. To be sure, most people recover from a simple rhinitis or laryngitis or bronchitis, but who can say that these do not furnish the soil and lay the stratum for many other diseases, both acute and chronic? Have we not, as physicians, been negligent in studying the bacteriology of the secretions in rhinitis and bronchitis? Have we consistently tried to shorten the course of these air-borne infections, or have we made any concerted effort to check their spread? The Commissioner of Health for Greater New York City, Dr. S. S. Goldwater, ought to be heartily supported in his efforts to prevent droplet infection in public conveyances. It may be an impossible task, but it is worth trying. Perpetual warfare ought to be waged against the universal ignorance of those who cough and sneeze in public places without protecting the face with a handkerchief. Spitting on the floor, while disgusting, is in reality much less dangerous to the public health, than this sputtering of fresh germ-laden spray into the air-ways of the defenseless passengers. The pervading odor after a sneeze gives a vivid

representation of the great number of persons who can be infected from one source alone. No wonder that an entire audience may "get a fit of it" after some thoughtless person has sprayed the entire atmosphere. When the light is properly placed, as, for instance, in a direct ray of sunshine, a veritable shower of spray after a sneeze may be seen to disseminate itself in all directions. It is a momentous fact that almost all of the acute infectious diseases of childhood—scarlet fever, measles, diphtheria, etc.—first manifest themselves as mucous membrane diseases by acute catarrhal symptoms from the nose, watery eyes, or plaques, patches and spots in the mouth and pharynx.

When a cold is once under way what can be done to shorten its course or to prevent its spread to others? Many authors have written widely (perhaps more widely than wisely) on this subject, most of them from the general standpoint of internal medication—the use of quinine, belladonna, calomel, etc. When studies of nose and throat conditions, as special entities, had their first great beginnings a promising forward step was taken. Unfortunately, however, much of the local treatment has consisted of sprays and inhalations. These, while of undoubted value, are not sufficiently concentrated, or of sufficient strength, to be markedly bactericidal. As a result of the physician's lack of interest or inability to produce results, self-medication at home has become widely prevalent. Such medication is often due to the tender consideration of an obliging druggist, who feels in duty bound to placate a customer by handing over the counter various drugs, such as quinine, aspirin, salol, phenacetin, rhinitis tablets, troches, lozenges, etc. If a cough becomes so severe as to disturb markedly the course of a patient's daily life some compound cough mixture is taken. This upsets the stomach, and the last state of such a man is worse than the first. There is no doubt that constitutional treatment must often be combined with local measures, but not in the majority of cases, for just so soon as the local condition is improved general symptoms quickly clear up. Now it would seem that the logical method of treatment is not to administer drugs by stomach, if drugs are to be used at all, but to apply such remedies directly to the site where action is desired, that is, into the nose in acute rhinitis, or into the pharynx, larynx, and bronchi when these parts are the location of active inflammation. In any case, much depends upon the germ with which we have to do. We must not forget that vaccines are also sometimes indicated when the predominating germ can be isolated.

In dealing locally with acute infections in singers, the two remedies most commonly used by specialists are silver in some form or iodoflor. The silver salts are all irritating when used strong enough to be efficacious. Many patients object strenuously to having these preparations introduced into the larynx, and not

without reason. Iodoform, in ether or in oil, is a rather powerful antiseptic, but is likewise irritating, and its persistent, unpleasant odor on the breath and in the clothing is a great disadvantage.

During the past three years I have been using, with remarkable results, the well-known aromatic principles,—oil of cloves, oil of cinnamon, thymol, eucalyptol and menthol, not in spray form, but applied directly to mucous surfaces. The physiologic actions of these are commonly set down in text-books as analgesic, anesthetic, stimulant, carminative and bactericidal. They have all been used by rhinologists for many years, but not in a way to derive most benefit from them. Knowing how active these agents are, I began to use them in cases of acute inflammation of the upper air-ways.

My first patient came in at five p.m. on a winter afternoon, absolutely aphonic, almost panicky-stricken with fear that she would be unable to keep her engagement for the following night in an operatic part which makes great demands upon the voice. She was told how impossible it would be for her to sing, but argument was of no avail. She "simply must go on." She objected strenuously to the ordinary forms of treatment and asked if there was not something else which might be used. I thought of the possibilities of menthol-oil, and asked if she would like to have it tried. To this she assented. After thoroughly spraying a 2% sol. of cocaine into the pharynx and larynx, about 1 c.c. of a 10% solution of menthol in sterile liquid petrolatum was instilled into the trachea. There was considerable reaction for a few moments, after which a cooling effect was experienced, with great immediate relief of the cough. On the following morning the patient could speak aloud in half voice. Another injection was then given, followed by a third about seven hours later. To my surprise, the patient was able to take her part by a process of "singing over" her difficulty,—a procedure, by the way, which should always be discouraged, as it may do permanent harm to the voice.

Since that time I have used instillations of menthol in oil, 5 to 25%, in all such cases. Not more than five such treatments are ordinarily necessary. One is given in the morning, one at night, at intervals of from eight to twelve hours. Some patients complain rather bitterly of burning. In such cases a few drops of a 10% cocaine solution should be instilled first, followed in a few minutes by the menthol-oil preparation.

In acute bronchitis it is astonishing how effective this treatment may be. Its analgesic action relieves the cough, its stimulant action increases expectoration, its carminative action produces hyperemia, and, finally, its bactericidal action makes it a satisfactory germ destroyer. The oily vehicle is of especial value in soothing an irritated mucous membrane. Treated in this way, a case of simple acute bronchitis, not due

to the pneumococcus or streptococcus, should not last more than 72 hours.

It is of the greatest importance that the instillations should be carefully and accurately placed.

If there is any tendency to gag or vomit the oro- and laryngo-pharynx should be sufficiently anesthetized to reduce all reflexes to a minimum. In acute laryngitis with swelling, redness and exudation from the false and true cords the drops should fall directly on the rima glottidis during phonation. If it is desirable to reach the trachea and bronchi directly, as in sub-glottic infections—tracheitis and bronchitis—the patient is asked to exhale through the mouth. At this moment the patient holds his tongue with a bit of gauze in the right hand, while the specialist uses a laryngoscope with his left hand, the right holding the laryngeal syringe. As soon as exhalation is well under way the dropping is begun, and the patient is asked to inhale through the mouth. This opens the larynx quickly and a good quantity of the medication is taken deeply into the bronchi.

As for the syringe, I prefer the glass laryngeal model commonly used in the clinics of Vienna and Berlin. Unfortunately, however, these are likely to be broken in sterilization. The best syringe I have seen thus far is the Reecord, which is imported by G. Tiemann and Company of New York City, but it is very expensive. I am now using an all-metal 10 cc. syringe, which is very serviceable, but has the disadvantage of not allowing the contents to be seen. Unless one is very careful, air will get in while filling the syringe, and the sputtering during instillation becomes very troublesome in securing accuracy of placement. It is well to have one or more extra cannulas to save time while sterilizing those already used. In any case a steady hand and a practised eye are necessary, for, if the cannula touches any part of the larynx, or if the drops fall in undesirable areas, violent coughing will ensue and most of the good effect will be lost. About one to two c.c. are usually quite sufficient, but more can be used with impunity, as the treatment is absolutely harmless.

These applications, as already mentioned, should be made at least twice daily, or, in bad cases, three times. The effect lasts for from two to three hours. At first there is a pungent, irritating sensation that sometimes frightens the patient, leading him to believe that acid or some very irritating drug has been put into the larynx by mistake. It is important, therefore, to explain beforehand just what is likely to take place. Coughing is likely to be rather violent for a few minutes, until the air breathed in begins to aid in the evaporation of the menthol. The secondary effect then begins, and there is a cooling, "open" sensation—a feeling of freedom and well-being.

In acute rhinitis the patient is asked to lie down with the head far extended over the edge of a couch, and the drops (usually a five per

cent. solution is preferable) are instilled into the nose with a dropper, care being taken to point the dropper upward in the direction of the eyes. This provides for the thorough distribution of the preparation over the mucous membrane surface, before it falls into the throat. Naturally if the nose is swollen shut, it must be sprayed first with a cocaine-adrenalin solution in order to shrink the erectile tissue, otherwise the oily preparation will not pass in.

In pharyngitis one should apply the menthol-oil solution by means of a post-nasal applicator in the usual manner. It is important here that no force be used, but the applicator should be moved from side to side as much as possible in order to distribute the drug over the entire post-nasal surface.

I have found the drops also of use in earache when such a remedy is indicated. In furunculosis, the canal can be packed with a strip of gauze soaked in a 10% menthol-oil solution. This will keep the walls of the canal separated and will help the pain and inflammation, especially in the first stage of the condition, or after pus has been evacuated and it is desirable to keep something in the canal.

Thus far I have used this treatment up to 30% strength in two cases of incipient pulmonary tuberculosis. Relief has been marked, and the number of staphylococci and streptococci has been greatly reduced. There seems, however, to have been little effect on the tubercle bacillus itself. After each instillation the patient lies on the affected side for five minutes to aid in placing the drops where their presence is most desired. It is, of course, still too soon to determine any lasting value from the use of this preparation in pulmonary tuberculosis.

CONCLUSIONS.

1. The course of acute respiratory diseases can be greatly shortened by direct instillations of aromatic drugs.
2. Of these a solution of menthol in oil is most effectual.
3. In many cases the quick result is striking.
4. The procedure is absolutely harmless.
5. It is of the highest value in treating the throats of professional singers.

HEALTH DAY IN CLEVELAND.—The twenty-fifth of October was celebrated in Cleveland, Ohio, as "health day." Pamphlets containing rules of health and information regarding prevention of disease were distributed by the municipal authorities. Moving picture theatres, newspapers and other publicity agencies cooperated and the results appeared so satisfactory that it is expected that a day will be set aside annually for such a celebration, not only in the city but for the entire state.

Clinical Department.

STUDIES IN SPEECH DISORDER.

No. 2.*

PROGRESSIVE MUSCULAR ATROPHY—CASE AND TREATMENT.

BY WALTER B. SWIFT, M.D., BOSTON,

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ABSTRACT I.—RARE CASE, USUALLY NOT CONSIDERED TREATABLE. II.—SHOWN TO BE P. M. A. III.—IMMEDIATE RELIEF.

An interesting case called upon the Voice Clinic for help in speaking and relief from an annoying and rather unusual affection of the throat musculature. The case is of interest in two ways: (a) it is one generally considered not amenable to treatment, and (b) it is an illustration of the extreme variety of lesion which merely from a defect of speech are brought to this clinic.

It also sets an example to those dealing with speech defect to exercise their ingenuity in every effort to try to relieve these too often considered incurable cases—even when but slight relief is possible—without permanent cure. Usually such cases go untreated—and many of them when marked relief is possible. Witness the stutter treatment of a few years ago; witness the occasional expulsion from school for mere speech defect; witness the years of delay in education that even some slight speech inability—the often easily cured case—imposed upon the young quite needlessly. Such truths lead us to look upon the relief of speech defect as no small matter, and it justifies the many years of study needed in this subject in all its phases—muscle, nerve, brain and function and the educational side—and give ground for a righteous indignation against the "incompetents" who dare enter the field only one-sidedly prepared.

Let me present the case and discuss the treatment afterwards:—

CASE: Man, 51, Irish cooper. Complaint: Weakness of legs and indistinct speech.

Present Illness. Began at night ten months ago with sudden cramp in his right leg. Soon the foot and ankle became weak. About seven months later indistinctness of speech came on gradually. Not now growing any worse. Weakness of legs increasing. Has left work for two weeks on account of it.

Past History. Measles as a boy. Influenza at 36. Otherwise never ill.

Family History. Grandparents unknown. Father died 75, cancer. Mother died 52, tuberculosis. No history of speech defect.

* No. 1 of this Series appeared in the BOSTON MED. AND SURG. JOUR., January 30, 1913.

Physical Examination. Well developed and nourished. Middle-aged man. Pupils regular and react to light and distance. Throat: Tonsils not enlarged, not reddened. Glands in neck are normal. Chest, heart, abdomen negative. Liver, spleen not felt. Genitalia, left hydrocele size of a large orange. Right leg atrophied, $\frac{1}{2}$ inch smaller in calf and $\frac{3}{4}$ inch smaller in thigh. Reflexes: Knee jerks present on both sides, much more markedly on the left. No Babinski. Ankle jerk present on the left. Absent on right. Wassermann is negative.

Vocal Record. Complaint, indistinct speech.

Present Illness. He first noticed inability to swallow about three months ago accompanied by regurgitation. This has persisted since. Six weeks after the onset he noticed indistinctness of speech. It varies somewhat, but is never normal.

Vocal Examination. "Baby" is said with a nasal twang and an over-amount of pharyngeal resonance. "Today" is uttered with correct T, but also evidence of lack in pharyngeal support. "Nobody knows how," said very easily without attempt at throat contraction. "Good going" said with great effort, marked throat resonance and slightly faulty explosives.

Diagnosis. Progressive muscular atrophy. Atrophic extension into muscles of larynx. Vocal laryngeal non-support.

The problem here presented is how to relieve a case of atrophy in the throat musculature so that clear expression would result. To expect anything from atrophic muscle directly is hopeless. Medication—strychnia—is sometimes used with slight show of improvement. To make the sounds clearly that demand exact muscle action the muscles must be enervated, must contract and reach by such contraction exactly determined points and positions demanded in vocal utterance.

The case under discussion showed nerve enervation present and some action, yet not the far reached action needed for the tone execution sought—yet enough and in such form as to make the end result perfect if only the intermediary step could be helped out. It, therefore, seemed that *laryngeal support* would do it. I, therefore, proceeded to train my atrophic patient to support his throat musculature with a certain definite position of his hand. Immediate results followed. I mean no permanent cure, but merely the sounds came at once clearly and easily. This continued as long as the support was present and, of course, vanished without it. But even with palliative relief, considerable help was rendered in enabling the patient to make people understand him easily. The patient agreed that the trouble taken was well repaid by the complete relief, though temporary, that the patient was thereby enabled to apply thereafter. A special collar could have served the same purpose, or sometimes bending the head forward and resting the anterior neck upon a high standing collar served as well.

Summary. Case of progressive muscular atrophy with involvement of muscles of the neck to such an extent as to render some sounds impossible and others indistinct, is relieved at once, and afterwards whenever applied, by giv-

ing the throat musculature staunch, firm support by hand, special collar or high collar applied to help out the action of those neck muscles.

A CASE OF THROMBOPHLEBITIS OF THE VEINS OF THE CORD ASSOCIATED WITH COLON BACILLUS INFECTION OF THE EPIDIDYMYIS.

BY E. GRANVILLE CRABTREE, M.D., BOSTON,

Resident Surgeon to the Genito-Urinary Service of the Massachusetts General Hospital; Fellow in Surgery in the Harvard Medical School.

THE history, pathological, and bacteriological findings in the case about to be described are of interest because they illustrate a group of cases of cord complications in non-gonorrhreal epididymal infections which, though not uncommonly seen, are, judging from the literature on the subject, not well understood. The card catalog of the Massachusetts General Hospital, and I do not doubt that the same is true of other hospitals, contains a group of cases, catalogued as *miscellaneous*, in which indefinite diagnoses of "inflammation of the cord," "oedema of the cord," etc., have been made, in addition to epididymitis, by the operating surgeon. Clinically the cases are similar to the one described. It is with the purpose of contributing to this class of cases, one in which the etiological factor is evident, that this case is reported.

The patient, a man of 34, came to the accident room and was admitted to the hospital with the diagnosis of torsion of the cord. Family history was negative for tuberculosis. The patient stated that he had had a slight cough for several years but no sputum. He had had gonorrhœa 14 years ago, had had treatment by a good man for eight months and had been discharged by him at the end of that period. He has never had discharge from the urethra since that time and has had no trouble with his urine. Two weeks ago he began to have chills, fever, vomiting and malaise but kept at work for a week, then went to bed. About that time he was caught with a sudden sharp pain in left upper quadrant which was worse on inspiration. He called a doctor who treated him for pleurisy by strapping the chest. This procedure gave relief. Three nights ago he awoke with sharp pain and swelling in the left scrotum. He found on examination that his pajamas had been pulled tight across his scrotum by his position in bed and were making pressure on the cord. The swelling has increased constantly since this attack of pain. His temperature at entrance was 99 degrees.

Physical examination showed no evidence of tuberculosis or of urethral infection. The left scrotum was enlarged, red and exceedingly tender. There was no evidence of fluctuation. The epididymis was thickened, the vas swollen and the cord thickened. Prostatic examination was unsatisfactory on account of the patient's fear of pain but the prostate seemed negative. The vesicles were not reached.

The urine showed the slightest possible trace of albumin but the sediment showed no pus. There were a few motile, gram-negative bacilli, apparently colon bacilli, in a fresh catheter specimen of the urine which were reported as colon bacilli by the bacteriologist. The white count was 23,000, 97% of which were polymorphonuclear leucocytes. Gonococcus complement fixation test was negative. Wassermann test was negative.

The left scrotum was poulticed for three days without improvement, then operation was determined upon. Preoperative diagnosis: Non-gonococcal epididymitis.

At operation considerable edema of the subcutaneous tissues was found. The epididymis was engorged, deep red, with numerous small yellow abscess areas. The veins of the cord were thrombosed and the interspaces edematous and yellowish. The thrombosed veins were removed and multiple puncture of the epididymis done. Cover glass preparations from the pus in the epididymal abscesses showed no bacteria. Cultures from the same, no growth.

The pathological examination showed thrombosis of the veins of the cord with marked round cell infiltration of the tissue of the cord between the veins (Fig. 1). Sections of the cord stained for bacteria showed numerous short, gram-negative bacilli, probably *B. Coli*, in large masses in the thrombosed vessels but more numerous in the lymph spaces of the cord (Fig. 2).

The patient was discharged the eighth day. The left side of the scrotum was indurated but not tender and the temperature was normal. The patient was seen three weeks later and at that time showed no evidence of the operation save the scar.

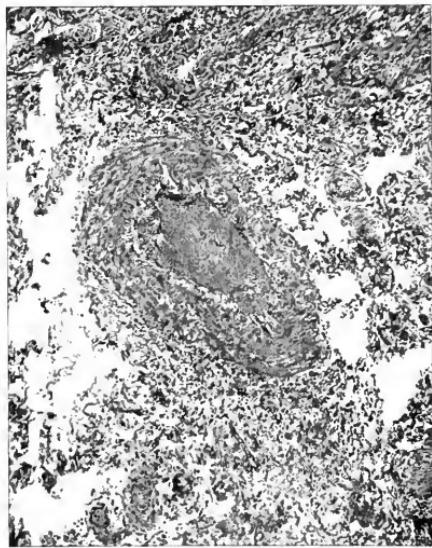


FIG. 1.

Section of cord magnified 500x, showing thrombosis of a vessel and infiltration with round cells and a few polymorphonuclear leucocytes. There are bacilli to be found in the thrombus. Photo by L. S. Brown.



FIG. 2.

Portion of a lymph sinus magnified 1500x, showing large numbers of bacilli growing in the tissue. The bacilli have been treated by alcohol and formalin to make them retain the Gram-stain (Smith's procedure) for photographic purposes. Photo by L. S. Brown.

Book Reviews.

The Clinical Anatomy of the Gastro-Intestinal Tract. By T. WINGATE TODD, M.B., Ch.B., F.R.C.S., England. Manchester: Longmans, Green and Company. 1915.

This volume, which is the fifteenth in the series of medical publications of the University of Manchester, embodies a course of lectures on the alimentary canal as given by the author while professor of anatomy at Western Reserve University. The field is further limited by the omission of the mouth, pharynx, tongue and salivary glands, and aims chiefly at the presentation of a comparatively limited amount of new material incorporated with the classic facts of anatomy. It is not intended as a general textbook, but as an outline of recent work which has not yet found its way into the general manuals. Especial emphasis is laid on the clinical aspects of the subject. The old nomenclature is employed throughout, rather than the B.N.A. The book is illustrated by thirty-two admirable text figures. It concludes with an index and alphabetic bibliography of 355 references to authors quoted. It is a valuable contribution to research and knowledge in an important field of the modern higher anatomy.

Reports of Societies.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

THE SIXTH ANNUAL SESSION OF THE CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA WAS HELD IN BOSTON DURING THE WEEK BEGINNING OCT. 25, 1915.

An extensive and varied clinical program was successfully carried out during the mornings and afternoons at the various hospitals of the city. The general meetings of the Congress were held during the evenings in the ball-room of the Copley-Plaza Hotel under the presidency of Dr. John B. Murphy of Chicago and Dr. Charles H. Mayo of Rochester, Minn. The following is an abstract report of the proceedings at these meetings.

MEETING OF MONDAY, OCTOBER 25.

DR. JOHN B. MURPHY: *Ladies and Gentlemen.* As retiring president of this organization I have the pleasure of presiding this evening for a few moments. I will call upon Dr. Lund to deliver the address of welcome.

ADDRESS OF WELCOME.

BY FRED B. LUND, M.D., BOSTON.

Chairman of Committee of Arrangements.

Mr. President, Ladies and Gentlemen: Boston has been defined, I do not know on how good authority, as not a city but a state of mind. Certainly a part of Boston has been in a state of mind ever since the Clinical Congress expressed the intention of meeting in Boston.

We can not show you any militant suffragettes or Zeppelins, but I believe you can see here as many feet of human colon removed as you did in London. We do hope you will like the place well enough so as not to want to get home on scheduled time.

Boston is proud of its medical as well as its historical interest. We have here some very fine hospitals. Some of our hospitals, which are closely connected with our medical schools, are the Massachusetts, City, Children's, Infants', Peter Bent Brigham, and Huntington.

We are glad to have the Harvard Medical School open for your inspection, yet we realize as well as you do that it is not the buildings but the men who make the hospitals and schools worth while.

It is an honor to our city that this Congress should care to meet here. We trust you will pass our imperfections by, and hope that where you see something good you will say that it is entirely due to the way the surgeons have worked together, and where there is something wrong you will say that it is because the surgeons could not avoid it.

As you know, Boston is tremendously interested in the war, and wonders when the end is coming. Perhaps it will be soon, perhaps not. It is a question whether there is any good to come from this war. When we think of the unspeakable sorrow and suffering, we feel there is not, but if there is any good it is the part taken by the medical profession. The war has sounded the death knell of anti-vivisection. We feel proud of the medical work and military

surgery done by Americans in this war. Dr. Strong of our Harvard Medical School has perhaps performed the most distinguished service during the war.

An opportunity will be given you to visit the battleships in our harbor, of which there are four. We hope you will look them over. I want again to thank you for coming to Boston. We will do our best to make your visit profitable and pleasant.

DR. MURPHY: Dr. William L. Rodman, who was to have been presented as president of the American Medical Association, was unavoidably detained through an accident. It was his intention to present a definite proposition. Dr. Albert J. Ochsner of Chicago may be called upon to present that proposition.

DR. ALBERT J. OCHSNER: Dr. Rodman has given the subject of a national board of examiners for the United States a great amount of thought. He received his inspiration upon this subject from the enthusiasm which this body has shown during the past five years of its meetings.

In order to take the position we are entitled to in the coming years we should do something to overcome the unfortunate arrangement which now exists with regard to medical education and medical licensing. There is no doubt that each state has a right to examine the medical profession. The manner in which this committee has worked out the examinations which shall be held by this board will be more thorough, and more complete and will be freer from any faults than any now held by various states. It will be left to any state to say whether or not any one who has passed this board shall practice in the state, but according to the plans which have been worked out, the examining board will be composed of such men as will be recognized from all parts of these states. They will be chosen from the medical schools, hospitals, libraries, and all the faculties of the medical department of the army and navy. They will not be controlled by any state. The requirements of preliminaries will be according to this department of the American Medical Association, at least. Each applicant must have a high school education, a college education, four years in a medical school, and must have served at least one year in a hospital as interne. That will not mean that it will be possible for any man to enter through a portal that is inefficient. This body has worked during these past years for the advancement of medical education and surgery.

I would, therefore, move the following resolution:

Resolved: That the Clinical Congress of Surgeons will support a national board of examiners according to the plan presented at San Francisco.

Seconded by Dr. MacRae.

Dr. Murphy then presented the motion for a vote and it was unanimously carried.

DR. MURPHY: Dr. Rupert Blue, president-elect of the American Medical Association, has been detained on account of business and cannot be with us tonight.

PRESIDENTIAL ADDRESS.

BY JOHN B. MURPHY, M.D., CHICAGO.

On behalf of the executive committee I bid you welcome to the city of Boston. Boston is called the

seat of learning of the western hemisphere. I congratulate you on having the opportunity to avail yourselves of the many advantages of education and inspiration which the city and its people will place at your disposition.

As retiring president permit me to thank you all for the honor and privilege of presiding over this body. In describing the work of this organization it seems to me fitting to use the Scripture quotation from the book of Matthew, "By their fruits ye shall know them." Let us refer to the origin of this organization; then I am sure we shall better appreciate its size, popularity, and personal interest. There was but one man who took up the task of its foundation and by his indefatigable zeal and courage, founded on the knowledge that he was working unselishly and confidently that its members would appreciate it, he succeeded in establishing the Clinical Congress of Surgeons of North America. He first inspired a few, the few inspired a large number. I refer to its founder, Dr. Franklin H. Martin, the present secretary.

The popularity and enthusiasm of the men have created a great interest. As a matter of fact, only one-third of those who applied for tickets at this meeting could be accepted.

It has become an international enterprise. It invaded the British Isles. Through its clinics it creates an international fellowship. It brings the United States and Canada and all of North America in closer relation. It is to be hoped that the purely internal medical department will soon take a similar organization. The Congress had a right to speak and act for the surgeons of this continent. It appointed the foundation committee which founded the American College of Surgeons.

By asking the surgeon to keep reports, it causes him to compare these with works of others and, therefore, should increase his capacity. By improving the individuals it elevates the mass.

The membership and standing of this body command the respect and confidence of the world.

The Congress has appointed a hospital efficiency committee for the purpose of bringing together the members and superintendents of the hospitals for elevating the moral code of hospital work.

It also appointed a committee for the national control of cancer. The coming year it will take up this field of work in an organized and systematized manner. The medical profession can not advance materially in its practices beyond the lay information. The time has come when there is nothing known to the medical profession which can not be submitted to the lay press. No one has greater respect for the medical profession than those who are exactly informed on its scientific attainments.

We shall never have medicine freed from its impostors and counterfeits until the laity is properly educated. The enormous service that can be rendered is shown through the co-operation of the public in the prevention and care of such diseases as smallpox, scarlet fever, diphtheria.

This organization has above all endeavored to democratize surgical teaching and surgical education. Each man is entitled to better opportunity. No organization can accomplish its best purpose without a mutual responsibility of the organization to the individual and of the individual to the organization. Kipling's "The Law of the Jungle" illustrates this very well.

. . . "The strength of the pack is the wolf,
And the strength of the wolf is the pack."

Dr. Charles H. Mayo, of Rochester, Minn., was then inaugurated president of the Congress in succession to Dr. Murphy.

INAUGURAL ADDRESS.

BY CHARLES H. MAYO, M.D., ROCHESTER, MINN.

Ladies and Members of the Clinical Congress of Surgeons of North America:

I wish to thank you all for the great honor you have conferred upon me in making me your president as successor to Dr. Murphy, the greatest living teacher of surgical principles.

My subject is: "Errors of Development Along Anatomic Lines. The Causes of Such Errors and Their Surgical Consequences."

Errors of development are always of interest because of serious or fatal import connected therewith. Many anomalies are seen, but only those occurring in the human family can be overcome.

In searching for a cleavage line in the process of development it is interesting to compare animals of similar type, for the missing link is not so far removed from animal to man. All progress has been identified in the embryo. Occasionally changes have occurred in conditions pertaining to the vertebrates alone. Only the higher type of being has an opportunity for anomalies.

(The remainder of Dr. Mayo's address was a discussion of embryological errors of development and the importance of their bearing on surgical conditions in human beings. The address was illustrated with lantern slides showing comparison between different types of animals in the process of development.)

MEETING OF TUESDAY, OCTOBER 26.

THE DENTAL PATH, ITS IMPORTANCE AS AN AVENUE OF INFECTION.

BY THOMAS B. HARTZELL, M.D., MINNEAPOLIS.

My plan in reading this paper is to emphasize the importance of the dental pathway as an avenue of entrance for general infection. I have brought material to you for your observation to confirm the point which I wish to bring out.

It is indeed true that the mouth, by reason of its size, is the host of an almost typical bacterial growth. One of the most important members of this flora is the streptococcus. I am well aware that I have no new material on the action of this organism. We all know that different parts of the body yield streptococcus to culture. Rosen offers definite and positive proof of the dental path of infection. The mucous membrane is a susceptible tissue to infection, and tooth structure is also, after eruption of the teeth, imperfect and capable of admitting infection. The lack of protection is well illustrated. When once an organism is in progress in the tissues it is liable to be carried into the blood.

There is a circulatory mechanism surrounding the tooth by which a mass of bacteria that penetrates the mucous crevice is easily taken into the

blood stream. If they do not gain access as just described, they may produce irritating toxins which are absorbed from the gum crevices. A further development, opening a route of destruction into the line of the crevice, causes ulceration.

In the study of serious dental abscess during the past year the staff at Minneapolis has attempted a definite and scientific investigation. This research has been carried on in laboratories of the school of medicine and has been assisted during the past year by the dental research department of the graduate school. In the laboratory procedure it has been our endeavor to prove or disprove the clinical infection. We have found that even bacterial culture obtained from abscesses may show individuals suffering secondary infection. From our first series of cases we are able to demonstrate lesions of heart muscle, and even secure the following photographs.

(The speaker then showed a series of photographs illustrating the histopathologic processes of local and general infections along the dental path.)

The subject of dental infection is so full of error as to command little respect. The remarkable vitality of dental pulp is shown in the fact that in about 50% of cases where a tooth is devitalized, the pulp may retain its vitality. Dental granuloma never takes place where pulp continues devitalized. It has been found that in toxemia resulting from a dental granuloma there is never great pyorrhoidal discharge.

CINEMATOGRAPHIC FILM SHOWING MOVEMENT OF BACTERIA AND AMEBAE.

By WESTON A. PRICE, M.D., CLEVELAND.

I am very grateful for the last paper for, with few exceptions, it is the only case I know of in which a medical man coöperates with the clinical and dental profession. This is an unfortunate thing to have to say, but as a matter of fact all the papers and all the arguments I remember have been from medical bacteriologists and pathologists.

I regret exceedingly that it is not possible for me to present my discussion with motion pictures. We should also study the organisms of the mouth which we believe to be very largely responsible for the number of cases of pyorrhœa. If I may discuss their neglect, I shall start by stating that there are probably good arguments for the amebic origin of pyorrhœa. It has been found that probably 90% of peoples' mouths at certain times of the year, and probably during the most of May, June, and July, contain amebæ. Probably every person in the room, with an exception of maybe 1%, has that organism in his or her mouth. That is a very strong argument for emetin, administered in such dosage as to change the clinical symptoms. The dental pathologist who has been studying from 20 to 30 years over these lesions of the mouth and has seen certain stages of development, and has seen local improvement in their conditions, comes to recognize certain fundamental principles.

We have in this country an organization of men and women who do nothing else but treat that disease. At the last meeting they had an opportunity to compare experiences, and not one person a member of this society could report that in his experience in which he had tried faithfully and earnestly, except in one case, had he cured pyorrhœa. What has happened? In many cases in my practice, in the practice of all these men, with these clinical

symptoms, certain changes have come into conditions in almost every person of whom intensive study has been made. It is sufficient to reduce the bacteria, and great improvement of clinical symptoms results.

Let me say that there are more patients in June and July in Cleveland without pyorrhœa, with this organism in their mouths, than there were patients with it in their mouths in January and February. If I had time to go into detail of cases where we have had slides taken during November, December, January, February and March, of a type of pyorrhœa, we should find that the organism was not present at any time when examined; at least we could not demonstrate its presence. During the weeks of February the conditions were slightly improved, during March and April organisms were found in greater abundance. There are now on record a rare number of such cases where this organism was present after April. It is a very definite bacteric picture, and if we had the motion pictures we should see in a certain type of men almost entire absence after use of emetin.

DISCUSSION.

By M. L. RHEIN, M.D., NEW YORK.

Infection we find seldom under pressure in and around the ends of the roots of the teeth. Statistics show that while the death rate in infancy and in early middle life has been steadily decreasing year by year, on the other hand from maturity to old age, until last year, the death rate from diseases of the heart, blood-vessels and kidneys has practical doubled in the United States in the past thirty years. Forty years ago the dentists in the United States did very little tampering with the pulp of a tooth. It was a rule to practice extraction as soon as there was pulp involved. Dentists felt that the acme of professional service was reached when, after the pulp had been removed, the tooth remained in comfort. Bacteriology twenty years ago had not revealed to us the presence of streptococcus in the ends of the roots of the teeth and that they could be present without causing the slightest irritation. A strong circumstantial point of clinical evidence to substantiate the fact of the increase in mortality due to faulty dentistry is found in the fact that during this period there has been at this advanced age a slight decrease in mortality. This appears to be due to the comparatively small amount of bridge work and the extensive extraction of teeth practiced.

ACIDOSIS IN ITS RELATION TO SURGERY.

By GEORGE W. CEILE, M.D., CLEVELAND, OHIO.

Plants and animals in their genesis may be biologically regarded as fundamentally the same. Animals, however, are detached from the earth and are contained within a water-proof covering so that acids can not be washed out. Moreover within animals may be enzymes by means of which harmful acid transformations are limited. The force of animation may also result from transformation of energy within the body. Elimination and energy transformation are associated with chemical acid reactions, some of which have even been made useful to organic functions. Thus we find that the respiratory center has been evolved to be controlled by the acid of the blood. Excess of blood-acid

causes acidosis. When it is necessary to increase the rapidity with which acid is produced one would expect to find that the mechanism which governs the circulation be speeded. One would also expect to find increased activity when acid is being produced. Surgically acidosis behaves as an intoxication with excess acid products which cannot be eliminated.

PROFESSOR LAWRENCE J. HENDERSON, Boston, read a technical paper on the chemical nature of acidosis, and DR. JAMES S. STONE, Boston, discussed the subject in the light of his surgical experience with children at the Children's Hospital, Boston.

MEETING OF WEDNESDAY, OCTOBER 27.

DR. MAYO: I have to announce that the annual meeting of this Association occurs at 12 o'clock tomorrow. The nominating committee is Dr. Simpson of Pittsburgh, Dr. Shering of California and Dr. Dodd of New York.

In the past we have become accustomed to hearing of the cure of so-called incurable lesions by taking out portions of the intestine. Tonight we are going to hear from some very conservative men about the real truth of the matter.

INTESTINAL STASIS AND ITS ACCOMPANYING SO-CALLED TOXEMIA.

By A. J. OCHSNER, M.D., CHICAGO.

The time allotted to me will be sufficient only to speak of the clinical, the practical part of the subject. There is not sufficient time for me to expose my ignorance on the toxemias. My colleagues who are versed in the scientific aspect of such things will dispose of that portion of the program.

So long as there have been authors in medicine the fact that the accumulation of excrement in undue quantity in the colon is harmful to the human being, and is the cause of disease, has been emphasized. Almost every author has a definite way of disposing of this difficulty. Institutions that are noted for restoring health, the watering places that have great renown, have attained their renown because of the laxative effect of the water found in their springs. The practitioners of medicine in all parts of the country have very commonly secured their high position because they have appreciated this fundamental principle. Proprietary medicines which have stood the test of time have all been based on the fact that they contained this property. Every language and dialect of every language has persisted in stating this fundamental fact. And so we might go on from point to point, bringing out prose and poetry to indicate that the colon must be kept empty in order to secure health to its owner. Just a few years ago mineral oil was introduced, and millions and millions of pounds of this have been sold to the laity and to the profession. Surgeons who have been successful have all insisted upon care of the colon after their operations; and so gradually during the last few years it has been made apparent that intestinal stasis is a terrible thing, and a thing which perhaps can be cured by surgical operation. This could be accepted only so long as it remained in the form of a fad. Just so soon as the element of faddism disappeared it has to come down to a

reasonable basis. The writings of Lane and explanations of Mixter and the hundreds of papers that have appeared all have the same tendency. They all show in the first place that intestinal stasis is harmful. These papers have discussed most thoroughly the study of the conditions with the x-ray. All of these have received an enormous amount of attention, but time will not permit us to go through them. The surgical treatment has been viewed from every imaginative and imaginary angle.

There are many opportunities for error in the study of patients. The clinician should be perfectly familiar with the variations in the normal subjects. The patient should be carefully studied before any action should be taken.

(The speaker now showed a series of x-ray plates.)

In our plates we have selected as nearly as possible the perfectly typical examples which show the general position of the colon. To the lay mind any one of these plates would serve as an argument which would induce them to submit to any operation. As a misunderstanding of these plates, many harmful operations have been done on the colon.

At any rate, we might say that in the wildest imaginations of the medical fakirs of the past ages no one would be able to conceive an idea which would so thoroughly impress the patient as could be done with this particular stuff, because in reading these x-ray plates you can read anything into them that you wish. If you know a great deal about them you can find it in these pictures.

In all the cases that I know of, less than 10% that came to our clinic for treatment of intestinal stasis really were operated upon. Four cases died. The other cases that died were cases that had suffered for so long a time that, with one or two exceptions, they really should not have been operated because they had no chance anyway. These cases represent less than 10% of those coming under our care during this year. A neurotic case showed marked improvement after operation.

In a large number the cause does not permit that the following of surgical treatment is necessary or will aid. The subject is of sufficient importance to deserve the careful attention of every surgeon. Much has been written of the bacteriology of these causes.

In regard to operative treatment, in a general way, if for any reason the obstruction cannot be removed, short-circuiting must be resorted to. It must be remembered that this operation should be considered very seriously as it involves great risk.

DISCUSSION.

DR. FRANK W. SMITHIES, Chicago: It is indeed a compliment to the internist and physiologist to be allowed to enter into the discussion this evening. Dr. Ochsner has given us all the proof necessary regarding intestinal stasis. Seeing that there is toxemia, it is up to us to discover what means are available for the improvement of the condition. We must discover the cause of such stasis by means of the x-ray.

It has been supposed that the excessive production of bacteria in the bowel permits of a greater absorption of bacteria than was thought possible. A great many of our cases indicate that this is true. Systematic feeding of the individual results in an improvement. It may be that persons with perfectly healthy bowels have

more bacteria in their blood than we have ever suspected.

In conclusion, it would seem that all instances of chronic stasis should be treated medically, but the medical man may require surgical aid.

After the removal of the causes,—bad teeth, adenoids, tonsils, etc., the internist is then ready to take care of the patient. When the patient comes with true surgical conditions, surgery is resorted to. Many times the removal of a gall-bladder relieves the stasis. The cure of pyloric obstruction will sometimes cure intestinal stasis, and all its symptoms. The chief part of the literature on the subject regards it as unmechanical. I cannot help but feel that we look only to operations for the result. In a case between a neurologist and a surgeon, the lawyer for the neurologist's side was asked, "Define a neurologist and a surgeon." "That's easy," said the lawyer. "A neurologist is a man who uses his brains; a surgeon is a man who uses his hands."

In going back to the question of fecal stasis, I cannot help but believe that each one of us must form a conception from his own and others' experiences. Now with my own experience I did more operating in the first half of the time than I did in the second. I am tending to advance backwards. The effect of our experience causes many of us to advance backwards.

I cannot help but feel that when we take a small intestine and try to make it do the work of the large, we are attempting the impossible. In some of these cases which have been operated on, after the recovery the constipation was increased. Now, as Dr. Ochsner says, how many of these cases may be relieved? I have taken only those cases of truly obstructive stasis. I have got 50% of good results. Is there any way out of this beside the present method?

Lane first maintains that forward anastomosis is the only way. Later he says forward and end-to-end anastomosis, then anastomosis of the ileum with the sigmoid direct.

DR. JOHN G. CLARK of Philadelphia: In what I have to say, I wish to emphasize what Dr. Ochsner said about discrimination in the case. It is difficult to determine what is primary and what is secondary. It is well to keep in mind the fundamental conditions of the action of the alimentary canal. It is a hollow organ. The function of this hollow organ is to be filled and then to empty itself.

These contractions, however, take place only under certain circumstances, so that as they fill they bring about a state of waves. This may be called tone. This state of tone causes contraction. What happens when this state of tone is present is, the muscle is stretched, the state of tone presses the point of contact, causing contraction. Thus the state of the organ must be filling up if the organ, by its content, causes a stasis.

Now the condition of tone in the alimentary canal is dependent upon the innervation of the whole alimentary canal. The vagus nerves share in the general conditions of the body. A depleted general condition is found in a flabby, weak person. The same thing is true of the alimentary canal. There may also be an abolition of tone and an inability of the alimentary canal to produce tone. This may be caused by worries brought about by emotional conditions.

Now we are in a position to understand how the general state of the organism may affect the digestive tract. If the patient is subject to worry or anxiety, that again will do away with the conditions which are fundamental for activity. Operations done in these circumstances are apt to leave individuals very much worse after operation than at the beginning.

I would like to urge or suggest a warning against kinks; they are not necessarily the cause of trouble. Kinks are found without stasis. I ask that you use your judgment in these cases, make a physiologic test, and be sure that mechanical conditions not only exist but are doing harm.

PLASTIC BONE SURGERY.

By FRED H. ALBEE, M.D., NEW YORK CITY.

(Illustrated by lantern slides.)

I will use the lantern entirely in demonstration, and first I would like to call your attention to the motor outfit which we use. Five years ago we began operations for inlay grafts and with the most crude instruments. We found there was no adequate apparatus to do the work with. From that time on we have been developing our instruments to do this work. I believe that in this line of plastic bone work, electrical power has a great influence. The surgeon is provided with a motor outfit, able to do the work much quicker and better. We can do almost anything that a carpenter can. Bone graft is placed on most impossible parts. It is remarkable how grafts will adapt themselves to their environment. The graft which is put in a part of the body will take on an unlimited amount of strength. I have used every joint which the carpenter uses.

(Dr. Albee showed the various kinds of grafts which can be made, the various kinds of joints, the splicing of the bones, (the use of the fish-tail joining seemed quite useful in many cases). He showed the instruments which he used, and the improvement in the methods which he now uses over those he had used before.)

MEETING OF THURSDAY, OCTOBER 28.

SYMPOSIUM ON MILITARY SURGERY.

Paper by GEORGE W. CRILE, M.D., CLEVELAND.

Read by DR. F. W. MARTIN.

We do not, any of us, regret any more than I, that I am to read Dr. Crile's paper, but it is absolutely necessary that it should be given in this place.

A group of weaklings pulling in the same direction yield a better result than a group of giants pulling in opposite directions. Our country has a vast supply of untrained men and raw material. Since the war began our manufacturers have had to learn how to make the things which we need and have before imported.

I suggested that it might be better to form a unit and that proposition was cabled to the American Ambulance hospital. The result was that this plan worked out so completely in France at the base that it was considered a competent plan.

If we are considering making such an organiza-

tion of the American reserve corps we must unite. Each man must be ready for the mobilization of the reserve force if it be required.

In general it would seem that the civil surgeon of the reserve corps should undertake no administrative duty. The civil surgeon should be exclusively devoted to the care of the patients. Those who come back from the front wounded need the devoted care of the surgeon and the surgeon must be prepared to render this service. I would, therefore, suggest that the first unit of the staff prepare for work in a well-organized hospital and that such a direction be distributed through all the good hospitals. The following personnel is suggested: A hospital of 500 beds; one chief surgeon, in charge; 5 associate surgeons with each in charge of one hundred beds; one orthopedic surgeon, and associate; one pathologist and assistant; one neurologist; one oculist; two dentists; and fifty nurses.

The apparatus should be owned by the government and set aside for each unit. The preparation and construction of these hospitals should be in charge of the regular army.

The following resolutions are suggested:

Resolved: That the Clinical Congress of Surgeons at its sixth annual meeting in Boston, October 29th, 1915, does hereby heartily commend our government in its efforts toward preparedness for war and it desires to express the purpose of its individual members to coöperate in any way possible with the medical departments of the Army and the Navy and the United States Public Health Service. Be it further

Resolved: That a copy of these resolutions be sent to the Surgeon-General of the Army, the Surgeon-General of the Navy and the Surgeon-General of the Public Health Service.

DR. MURPHY: You have all heard the resolution—a serious one. It should be the pride of every man and of every country of the world to be prepared to do his and its full duty when the time comes. Two years ago at this date if anyone suggested such a resolution, he would have been considered a fit subject for the insane asylum. We must, therefore, as a medical organization, make known our desire to assume the full duty placed upon us. The medical profession has always been found ready to render such service when it has been called upon. I, therefore, take great pleasure in seconding that motion.

Paper by EDWARD H. NICHOLS, M.D., BOSTON.

I have been asked to speak on the organization of hospitals in England. The basis of administration of the English hospital is interesting. The hospital consists of 520 beds, twenty of which are kept for officers. The administration in these hospitals turned out to be almost identical with that of the Boston City Hospital.

The commanding officer is the colonel; under him come the major, captain, sergeant and orderly. The captain corresponds to the resident surgeon in the civil hospital. The sergeants and orderlies are nearly all men who before war received a complete training and are experienced male nurses. As to nursing, it is interesting to see the number of nurses required in these hospitals. The administration was carried on with great swiftness.

SYMPOSIUM ON CANCER.

BY CHARLES H. MAYO, M. D., ROCHESTER.

The general subject of cancer is most important and the question for us, as surgeons and medical men, is have we done our whole duty to the public and if not, what more could we have done.

In the United States from seventy to seventy-five thousand people have cancers, so that our aim can not be too great in order to advance the question. Probably two hundred thousand people in the world are suffering with cancers. England had more women than men before the war. Five and one-tenth per cent, died of cancer between the ages of thirty-five and seventy. More people have cancers in the East than in the West. The young people went West leaving the old people in the East; thus those of cancerous age were all left behind. Now those who went West are becoming of cancerous age, therefore, cancer is increasing in the West also.

If we find a germ of cancer it will be an acid growing germ. The mouth is normally alkaline; as we advance down to the stomach, the great acid machine of the body, we find one-third of all the cancers that affect the human race. Cancers appear in acidulous regions. One of the rarest things you will find is cancer of the duodenum. You will not find it in the common duct and not in the lower portion of the duodenum. In the small intestine there is alkaline secretion. We come down to the colon, and the acid processes of fermentation there give rise to a large portion of cancers of the colon.

DR. CLARK.—I purpose to speak on the relative merits of the operation for cancer of the uterus. It is my firm belief that the organ in which cancer has developed should be removed. It is true that in cancer of the cervix the anatomical relation to the bladder and ureters tends to limit efforts toward its treatment. Heat has long been known to possess elective affinities for cancer. We became interested in this method about two years ago. Its value is so definite in advanced cases that serious consideration must be given its possibilities and its various uses in different stages of the disease. I believe that the cancerous uterus should be removed primarily or secondarily. For cancer of the body of the uterus vaginal hysterectomy is the cause of poor surgical risk. In the so-called inoperable cases we aim to stop bleeding and discharge, and occasionally convert what is apparently an inoperable condition into an operable condition. I do not believe that the cautery should be used from a curative standpoint. It should be combined with other measures and be looked upon more in the light of an adjunct. I became interested in the use of heat with a view of coöperating with other methods and primarily for the purpose of controlling the unpleasant complications. When you tie the internal iliacs, it is a splendid procedure.

DR. TAYLOR, New York.—I personally believe that there is a distinct value in the use of radium and cautery in cancer of the uterus. I believe that the surgical removal of cancer of the uterus is never destined to be abandoned. The selection of route of operation is important. There are the vaginal and the abdominal. The abdomen is the preferred route. There are cases where this route is impossible. I prefer the abdominal route in all cases except where there is an excess of fat. I know that in my own work simple hysterectomy is the best

In the favorable case, the simple theoretical operation by the abdominal route may be used. There is more risk in the radical operation. I believe that the primary risk is not sufficient to outweigh the advantages of the more extended operation. I believe that the mortality in the future will be less if more care is taken in the surgery. Injuries to the ureters are accidental. While they can not be laid to carelessness they must be avoided. There is no doubt that injuries to the bladder are frequent. The separation of the bladder is more extensive in the radical than in the simple operation. In the radical operation the bladder is separated farther down on the vagina. Catheterization for a period of three weeks until the patient is up is not uncommon. Hemorrhages are serious complications and responsible for a number of deaths. The risk of infection is a definite one. Three per cent. of the deaths are due to some form of infection.

DR. J. F. PERCY, Galesburg, Ill.—A mass of cancer is destroyed when the temperature is raised to 112 degrees Fahrenheit and retained for ten minutes. In all forms of malignant cases we see where it is possible to use heat as the destructive agent. The use of heat is at all times valuable and of benefit in a large number of cases of the utterly hopeless type. In the hopeless type of cases the result is sometimes surprisingly good. By means of heat the patients lose their pain and have less dependence on morphine. My experience so far is that in large mass cancers the x-ray is a dangerous treatment. Heat destroys the neoplastic tissue. If I could destroy the growing mass completely, the patient could recover. This, unfortunately, heat will not infallibly do, and is, therefore, not curative. In my better judgment and better technique I am convinced, however, that by it a degree of palliation will be obtained that is worth while.

(The subject of the treatment of cancer of the uterus was discussed fully, by Dr. Percy and others, in the Cancer Number of the JOURNAL, July 15, 1915.)

DISCUSSION.

DR. EDWARD REYNOLDS, BOSTON.

I have been given the difficult task of following the carefully prepared papers with a criticism of them. I have been unable to prepare. These papers bring before us a very interesting question in the treatment of cancer of the uterus by heat and by other radical methods. The subject of treatment of cancer by moderate heat is not a new one. I well remember that almost at the outset of my surgical career it was my privilege to come into surgical contact with the pioneer of the heat treatment, Dr. Burns of Brooklyn. The claims of those who have used the treatment have in the most part been difficult to believe and the profession has been skeptical. On the other hand, we must remember that they have not been downed. I am one of those who believe that the laboratory has not yet given us any strong evidence in the bacteriology of the disease. I do not believe that the use of moderate heat is the only or nearly the best means of preventing recurrence in the recently exposed tissues around the growth which is being removed. I am one of those who disbelieve in the use of the galvano-cautery or cautery in any form. I am one of those who prefer to use the cold steel knife, until they have taught us the

superior advantage of other methods; and I am willing to be taught.

ANNUAL MEETING.

At the annual meeting of the Congress held at noon on Thursday, October 28, Dr. Edward Reynolds, Boston, reported for the committee on cancer, speaking also as president of the American Society for the Control of Cancer. Dr. Ernest A. Codman, Boston, presented an extensive report on hospital efficiency and end-results, advancing in detail the method and plan for standardization which he proposes for adoption by hospitals throughout the United States. Dr. J. A. Hornsby, Chicago, discussed this subject. Dr. John W. Long of Greensboro, N. C., reported on first aid to the injured, referring to the recent conference on this subject in Washington, which was discussed editorially in the issue of the JOURNAL for October 21. He presented a resolution similar to the one adopted at this conference, which was unanimously passed. It was voted that the next session of the Congress shall be held at Philadelphia, and the following officers were elected for the ensuing year: President, Fred B. Lund, Boston; first vice president, Jasper Halpenny, Winnipeg, Manitoba; second vice president, S. M. D. Clark, New Orleans; general secretary, Franklin H. Martin, Chicago; treasurer, Allen B. Kanavel, Chicago; general manager, A. D. Ballou, Chicago.

AMERICAN COLLEGE OF SURGEONS.

The fourth convocation of the American College of Surgeons was held on Friday evening, October 29, at Symphony Hall in Boston. After an introductory address by Dr. John Miller Turpin Finney, president of the College, the candidates were presented by Dr. Franklin H. Martin, the general-secretary, and the fellowships and honorary fellowships were conferred by the president. The recipients of honorary fellowships were Dr. David W. Cheever, of Boston; Dr. Wilfred T. Grenfell, of Labrador; Dr. Stephen Smith, of New York; and Dr. Lewis McL. Tiffany, of Baltimore.

The fellowship address was then delivered by Rev. Edmund J. James, president of the University of Illinois, who discussed the relations of medicine and surgery with each other and with other of the forms of human occupation and service. He commented also on the intrinsic and extrinsic difficulties which have hitherto hampered the progress of medicine even more than that of other and cognate sciences. Following the exercises, an informal reception was offered to the Fellows and guests by the officers and regents of the College. The officers of the College, elected for the ensuing year are: J. M. T. Finney, Baltimore, president; W. W. Chipman, Montreal, and Rudolph Matas, New Orleans, vice-presidents; Albert J. Oehsner, Chicago, treasurer; Franklin H. Martin, Chicago, secretary; and John G. Bowman, Chicago, director.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA.

AFTER months of careful preparation the clinics and general meetings of the sixth annual session of the Clinical Congress of Surgeons of North America was successfully carried out in Boston last week. Between 1500 and 2000 members of the Congress were registered for the various exercises, and opportunity was afforded for all to observe the special or general work in which each was particularly interested. The plan of the meetings of this Congress, as outlined in his presidential address by Dr. Murphy, has now established its value in the emphasis which it lays on the clinical aspect of surgical and medical congresses. The Clinical Congress of Surgeons of North America has been a pioneer organization in this respect and the effect of its influence has been felt in smaller societies throughout the country.

Naturally the clinical exercises of the Congress do not readily lend themselves to journalistic report. The papers presented at the evening sessions, however, represent the summary of the experience of leaders in the profession and are of corresponding value in co-ordinating the material and ideas presented in the clinic. The full text of these papers and addresses are to be published in *Surgery, Gynecology and Obstetrics*, with the complete transactions of the Congress. The JOURNAL takes pleasure, however, in calling attention to its abstract report of these evening meetings which appears in another part of this issue.

The election of Dr. Lund as president of the Congress to succeed Dr. Mayo next year is a matter of pleasant gratification not only to his immediate friends but to the many members of the profession throughout the country with whom he is acquainted. In their behalf and in that of the JOURNAL we are glad to extend cordial congratulations to Dr. Lund upon this well-merited and honorable recognition.

Viewed in retrospect, the coming and the course of the Clinical Congress in Boston has proved of great value to the local surgical profession, not only as a stimulus to individual endeavor, but as an example of the importance of coöordination between the different members and branches of the profession for the securing of the maximum of good judgment and technical efficiency from the point of view of the surgeon, combined with the optimum of beneficial end results from the point of view of the patient. It is our hope that the Congress may have proved, in some small degree, as helpful to our guests as it has to the profession of Boston.

DEMENITIA PRECOX AND CRIME.

THE factors of an etiological nature which are found to be operative in the genesis of crime and delinquency are indeed multiple. No dogmatic statements can be made concerning the all-importance of this or that provocative agent responsible for the outercropping of criminalism or delinquency of any sort. Those who are interested in the criminal and delinquent in general, particularly the juvenile offender, in whom, it must not be forgotten, the beginnings and evolution of these anti-social states are most

clearly and genetically seen, would do well to read, in fact to study, the recent excellent and comprehensive work entitled "The Individual Delinquent" by Dr. William Healy, Director of the Juvenile Psychopathic Institute in connection with the Juvenile Court of Cook County, Ill.

A recent paper by Dr. William J. Hickson, Director of the Psyehopathic Laboratory of the Boys' Court of Chicago, will prove of interest since it is decidedly *à propos* of the general problem here mentioned, and because it directs our attention to a special causative factor in the production of criminal conduct. Hickson (*Illinois Medical Journal*, October, 1915) asserts that in all our courts, criminal and civil, one will constantly find a large percentage of cases of dementia precox which go unrecognized, although dementia precox, in a mild form, is really responsible for the condition present. In the Boys' Court of Chicago, for example, he states that the percentage of cases suffering from dementia precox in a group of 929 delinquents was no less than 15.6. The dementia precox occurred alone or was grafted on feeble-mindedness, in a certain number of cases being complicated with alcoholism, hysteriform seizures, simulation, and other conditions. He declares that most of the crimes of violence, rape and the like were committed by individuals afflicted with dementia precox, either pure or grafted on feeble-mindedness. Although paresis, manic-depressive insanity, epilepsy and the like were responsible for a certain number of the crimes, still their total number was practically negligible when compared with the frequency of dementia precox. As a consequence, Hickson goes so far as to say that, providing it be agreed not to call feeble-mindedness a psychosis, dementia precox might almost be regarded as the criminal psychosis *par excellence*. It must not be forgotten that, at the present time, and with the usual method of examination employed, dementia precox is frequently concealed and mistaken under many other diagnoses. In any case the importance of dementia precox should be recognized as a perhaps fruitful source of origin of many conflicts with the law. It should be searched for and unearthed just as we do in the case of suspected feeble-mindedness.

A further fact to be held in mind is that feeble-mindedness frequently has grafted upon it a dementia precox reaction. The author quoted above says that on an average of from

15 to 25% of the population of many institutions which harbor the feeble-minded are nothing other than cases of dementia precox, pure or grafted on feeble-mindedness. These cases are not recognized as such by those in charge, and efforts should be made to recognize them and transfer them to proper hospitals for the insane.

Dr. Hickson also mentions the fact that his laboratory has devised a system or method of psychological examination of such a nature that these tests are, in the matter of reliability and applicability, for dementia precox what the Binet-Simon tests are for feeble-mindedness. In the forthcoming report of the Psychopathic Laboratory a description of these tests will be given.

Although dementia precox may not be as frequent a causative agent of delinquency as one would conclude from the above statements, and although there may be much doubt and much difference of opinion in the diagnosis of borderline, early or latent cases of dementia precox, still the fact that dementia precox, pure or grafted on feeble-mindedness, is a not infrequent and perhaps even a common cause of criminalism, although appreciated by many at present, is forced home to us more strongly and more clearly by the remarks and conclusions here enumerated.



MIGRATION OF TUBERCULOUS PERSONS.

THE chief result of the investigation of interstate migration of tuberculous persons shown by a series of articles recently published in the *United States Public Health Reports*, written by service officials, entitled "Interstate Migration of Tuberculous Persons," is that local care is a better cure than climate without care. These reports cover investigations in principal health sections of the South and West.

This comment does not apply to the well-to-do, as they can travel with all comforts, can have constant competent medical supervision, have no financial worries, can devote their entire attention to getting well and are welcomed at nearly all health resorts. In fact, this class is the main source of income to some communities.

While tuberculosis spares no class of people, it is by large majority a disease of the working class, and it is to those that depend on their daily earnings for a livelihood for themselves and

family that the problem is different. In fact it becomes complicated, for with no intention to discredit the value of climate, it is unfortunate that money plays a very important part in the hope of recovery. Experience has taught that the disease usually picks its victim in the first half of life, in his most productive years, and yet before he has had time to make provision for such emergency. Vital statistics show the greatest percentage of deaths between the ages of twenty and thirty.

A common belief has been, and unfortunately still exists, that when one has tuberculosis all he has to do is to go to some well known health resort and the climate will do the rest. Many fail to realize that not only must the prevailing temperatures fit the individual but that climate, to give best results, must be free to the patient, to be out in it as nearly continuously as possible, day and night.

Rest, which is one of the first principles, can hardly be carried out in any way if the patient has but little funds and must seek employment. The question of employment must be considered, as these resorts are over-run with people seeking work. Most kinds of work naturally are not an aid and most employers do not care to hire consumptives if they can avoid it, therefore most of those seeking work find only disappointment.

If fever is slight most of these people are bound to try to save by neglecting medical supervision, thus tending to allow their condition to progress insidiously. For the same reason they go without comforts and proper food that they might have had in their homes. Naturally they sooner or later worry about their finances and often become homesick on account of separation from relatives and friends, with the result that suffering is increased or death steps in to claim the victim.

Not only must financial worry and homesickness be weighed in the balance, but it must be assured that the patient's physical condition is such that he can stand the travel with no ill effects. This last also applies to the question of sea voyage as well as railroad travel, for while ocean air may be very pure it is often too stimulating for a weakened and diseased lung. Far better may be the results by teaching intelligent attention to hygiene than to expect climate alone to be a magic wand.

Dr. Thompson Frazer of Asheville, N. C., has shown in the reports of his experience that, owing to the chronic character of the disease, improve-

ment is bound to be slow, and a case in the early stages must expect on the average to stay about a year. To do this a minimum cost of maintenance of \$700 outside of extras, carfare, etc., must be considered.

If home conditions are not satisfactory and a resort is advised, the patient and relatives should be given full knowledge of the obligations which must be met. Many arrive at resorts all but bankrupt and expect in a few weeks to join the ranks of wage earners.

If the importance of rest, good food and care are compared with the benefit derived from climate alone and its associated cost, much suffering may be avoided.

MEDICAL NOTES.

HARVARD MEDICAL SCHOOL OF CHINA.—The second annual report of the work of the Hospital Department of the Harvard Medical School of China shows an increase of patients treated of 100 over last year. About 30% of the total number were Europeans. Of the medical cases among Europeans, 82% were discharged well or relieved and 90.1% of the surgical cases. Of the Chinese medical cases 64.7 were discharged well or relieved, and 77.2 of the surgical cases. The table of diseases shows a preponderance among the Chinese of tuberculosis, that disease representing 13.5 of the total. There were 9% of traumatic cases, 6% of venereal disease, 4.15% of beriberi, and 4% of malignant disease. There were five cases of opium habit and one of leprosy.

SOCIAL HYGIENE CONFERENCE.—The annual session of the Central States Conference of problems of social hygiene was held in Chicago on October 26. The principal address was delivered by Dr. Victor C. Vaughan, dean of the medical college of the University of Michigan, on "The Duration of Human Life." He commented particularly on the notable increase of life expectation and of average longevity during the past twenty-five years.

CONTAMINATION OF SWIMMING POOLS.—The JOURNAL has commented from time to time on the question of disinfection of public swimming pools. In this connection recent experiments by Dr. Wallace A. Mannheimer of Columbia University are of interest. Six pools were examined, ranging from 25,000 gallons capacity, ten times that amount, and varying from thirteen users a day in a club to the Columbia tank with the student body bathing in it. In general, it concludes that a large tank is always better than a small one.

"One of the tanks of 25,000 gallons filled with unfiltered Croton water was never in satisfactory condition even when calcium hypochlorite was used, while the pool of the club house was always in good condition, although no chemicals were used."

He goes on to state that "the factor not to be ignored in the condition of the sanitation of a bathing pool is the character of its patrons. The superior practice of hygiene by the college students makes their bathing place clean compared with a public establishment comparable in size, where with refillings every second day the bacterial count was high. All conditions considered, Dr. Mannheimer finds that filtration to clear the water of mechanical impurities and improve its appearance and chlorination to kill the bacteria, make an excellent combination. It is important to use the hypochlorite in the proper proportions. No comparison is here made with alum or other chemicals."

NEW YORK CITY'S HEALTH LAST WEEK.—During the week ending Oct. 23 there were in New York City 1296 deaths, with a rate of 11.64 as compared with 1216 deaths and a rate of 11.36 for the corresponding week of 1914. Health Department officials pointed out that while there were 80 more deaths reported during the past week than during the corresponding week of last year, 49 of these are to be accounted for by the increase in population. Considering the boroughs separately, Manhattan, The Bronx, and Queens showed a decrease in their death rate, Brooklyn and Richmond each an increase.

Measles, scarlet fever, diphtheria, croup and cerebrospinal meningitis showed noteworthy decreases in the number of deaths reported from these causes. Heart disease and chronic Bright's disease both showed an increase.

The mortality in the age group under one and under five years showed an increase. The rate for the first 43 weeks in 1915 is 13.23 as compared with 13.65 for the corresponding period of 1914.

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.—The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Señor Alvarenga, and amounting to about \$250, will be made on July 14, 1916, provided that an essay deemed by the Committee of Award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published. They must be typewritten, and if written in a language other than English should be accompanied by an English translation, and must be received by the secretary of the college on or before May 1, 1916.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on

its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the college; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1915 has been awarded to Dr. J. E. Sweet, Philadelphia, for his essay entitled "The Surgery of the Pancreas."

MARKET SPECULATION IN QUININE.—It is reported that there is at the present time at least 200,000 ounces of quinine in stock in the United States, almost a year's supply. Nevertheless it is selling at \$2.50 an ounce, against 25 cents an ounce eighteen months ago. This extraordinary rise is due, it is said, to a speculative movement, and it is estimated that speculators have made \$500,000 in this country and \$1,500,000 abroad.

"American manufacturers are receiving from abroad approximately 50% of their usual consignment of cinchona bark, solely from Java; so that, on the basis of bark shipments, the price, so the retailers complain, should not be much more than twice the usual price, or 50 to 75 cents an ounce.

"Just after the European War broke out quinine went to 31 cents an ounce, and did not go above 40 cents an ounce until a few weeks ago, when this extraordinary speculation began. It was estimated that Oct. 1 the brokers had accumulated about 200,000 ounces."

PREVALENCE OF MALARIA, MENINGITIS, AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for Oct. 15 states that during the month of August, 1915, there were in California 122 cases of malaria, 3 of cerebrospinal meningitis and 131 of typhoid fever. During the same period there were 145 cases of typhoid fever in Texas. During the week ended Sept. 25 there were six cases and two deaths of meningitis in New York City.

PRESENTATION TO A MEDICAL MAN.—At the twenty-fifth annual session of the New York and New England Association of Railroad Surgeons in New York City on Oct. 21, a silver loving cup was presented to Dr. George Chaffee of New York, founder and former president of the Association, by the other ex-presidents.

HUMIDIFICATION OF AIR.—With the advent of the winter season comes the problem, still unsolved, of the proper ventilation with sufficient humidification of air in artificially heated houses and public halls.

"Some of the vagaries of present systems are presented in a recent pamphlet by Samuel H. Wheeler of Fairfield, Conn., who notes that sometimes as much power is required for the ventilation of a schoolhouse as for a machine shop, 150 horsepower for one high school being the figure given. The air in such an establishment is screened to exclude the dust, and washed, and when found too dry, is humidified and con-

ditioned, but after all it is not satisfactory. One experimenter has succeeded in evaporating into the atmosphere of a single steam-heated living room from six to eight quarts of water a day by a very simple capillary siphon. Six or eight quarts a day is very nearly what an ordinary furnace will dispose of in a day for an entire house, and the result is that with the coming of the shut-in season the walls and furniture begin to crack, and when the air finds it cannot get moisture from the inanimate objects in contact with it, it begins on the humans, and some widely distributed New England maladies are helped to efficiency by the lack of moisture in living rooms."

DEDICATION OF MAGEE HOSPITAL.—On Wednesday of last week, Oct. 27, the new buildings of the Elizabeth Steel Magee Hospital of Pittsburgh, Pa., were officially dedicated with appropriate ceremonies. The principal addresses were made by Dr. Charles Edward Ziegler, the medical director of the Hospital, and by Dr. Walter William Chipman, professor of obstetrics and gynecology at McGill University, Montreal. Following the addresses honorary degrees were conferred by the University of Pittsburgh in recognition of the occasion.

CONVICTION FOR DRUG MISBRANDING.—In the United States District Court recently the proprietors of Minard's Liniment pleaded nolo against a bill of information filed by the government alleging that the company misbranded its product in violation of the pure food and drug act. The government maintained that the liniment in question was incapable of performing all that was claimed for it on the label. The company was fined \$50 in lieu of costs.

EUROPEAN WAR NOTES.

RETURN OF AMERICAN PHYSICIANS.—Another party of American physicians returned to the United States on Oct. 20 aboard the steamer *Cretic*, which arrived in Boston on that day. The members of this party who had been serving in Serbia were Dr. Louise Taylor-Jones, who established a hospital for babies at Nish; Dr. Thomas W. Jackson of Washington, D.C., who succeeded Dr. Richard P. Strong as head of the American Sanitary Commission in Serbia; Dr. Joseph Thompson of Cleveland, Ohio; and Dr. George W. Mellon of Beaver, Pa., who will return to Belgrade after a three weeks' leave of absence in this country.

CHOLERA IN AUSTRIA-HUNGARY AND GERMANY.—During the week ended July 31 there were in Austria 2342 cases with 1286 deaths of Asiatic cholera, the majority being among the civil population. During the week ended Aug. 7 there were 2128 cases with 945 deaths. In Hungary during the week ended August 8 there were 565 cases of cholera with 312 deaths. During the

week ended Aug. 28 there were in Germany 267 cases of Asiatic cholera with 41 deaths, the majority being among prisoners of war. During the week ended Sept. 4 there was a group of 13 cases of cholera with one death at Danzig, and there was one case each at Breslau and Oppeln.

THIRD HARVARD SURGICAL UNIT.—The third Harvard Surgical Unit, whose organization was announced in the issue of the JOURNAL for Oct. 21, will sail from New York during November for service in a British base hospital somewhere in France. Dr. David Cheever of Boston was appointed as chief surgeon in charge of this unit and will have entire control of its activities from the time of its departure. The unit consists of thirty-six nurses and eight surgeons in addition to Dr. Cheever.

INCREASE IN COST OF DRUGS.—The price of many of the principal drugs continues steadily to increase with the progress of the European War and also as a result of the speculation based on disturbed market conditions. Report from New York on October 20 shows the comparative prices of some of the important drugs and chemicals on Oct. 19, 1914, Sept. 1, 1915, and Oct. 1, 1915, as follows:

	Oct. 19, 1914.	Sept. 1, 1915.	Oct. 1, 1915.
Bismuth subnitrate.....	\$2.55	\$2.70	\$2.80
*Bromides .....	.67	1.40	3.25
Caffein alkaloid.....	6.25	10.00	10.75
Carbolic acid .....	.38	1.50	1.70
Chloride of lime .....	.03	.02½	.05
Chlorhydrate .....	.58	.95	2.00
Norwegian cod liver oil.....	19.00	85.00	85.00
Glycerine C. P. ....	.24	.25	.60
Lycopodium .....	.70	.90	1.15
Manna	\$2½	.80	1.05
Mustard oil, artificial.....	3.10	4.75	6.00
Opium	10.00	7.50	9.25
*Quinine, ounce .....	.31	.33	.40
Saccharine	4.50	8.00	8.50
Salol	1.05	6.50	7.25
Synthetic wintergreen oil.....	1.00	1.65	2.85

* Nominal.

SHORTAGE OF PHYSICIANS IN RUSSIA.—In previous issues of the JOURNAL we have commented on the notable shortage of physicians in England, especially for the purposes of civil practice among the population at home, the majority of able-bodied physicians being required at the front. Apparently a similar condition prevails even more seriously in Russia, where a large part of the population is now entirely destitute of medical care. A recent issue of the *Lance* makes the following statement on this subject:

"The Minister of the Interior, Prince N. I. Sherbatoff, has applied to the Minister of Education, Count P. M. Ignatieff, to consider measures for increasing the number of the medical men of the country. In his memorandum I observe that a large portion of the Russia people is now deprived of the possibility of medical assistance. In view of the insistent need

sity of taking advantage of all available medical aid, imperial permission was requested to put medical men of foreign universities, whether Russian subjects or subjects of allied or neutral countries, in Russian positions, as well as students attending the last courses of the medical faculties. But these extraordinary measures will not obviate the need for more permanent measures for the increase of the number of doctors. One of these specially indicated in the memorandum is the increase of the number of superior medical schools.

APPEAL FOR RED CROSS AID.—In a recent communication to the daily press Miss Mabel T. Boardman, national director of the American Red Cross, describes as follows the urgent needs of that organization for funds and supplies to relieve distress among the peoples of the belligerent European countries during the coming winter:

"The American Red Cross is receiving many urgent appeals from Europe for hospital supplies. From the American Relief Clearing House, Paris, H. O. Beatty, the director-general, writes:

"I think it will not be amiss to call to your attention the present situation in hospitals, in view of the coming winter campaign. The hospitals that have benefited so largely through the generosity of the American Red Cross are beginning to find themselves in a condition of real want for the common necessities. The demand for sheets, pillow cases and shirts is greater than ever. This is due to the fact of hard usage, and we should like to ask you to let us have as much of a supply as possible. The hospital organizations are much better than they were last winter, when in process of formation. We have a never-ending list of applications, also, for absorbent cotton, cotton batting and gauze. Of these we can never have enough. Chloroform and iodine, of course, are first necessities. May I ask that you let us have as much of these supplies as your resources will permit?"

"Another member of this executive committee, Charles Carroll, reports:

"As a member of the relief committee, I have lately been traveling through a part of Western France, and found several hospitals in shocking need of gauze, bandages, cotton and hospital garments. They were bravely making the best show they could under the circumstances, but they often never receive what is vitally necessary for their wounded. I was able, thanks to the American Red Cross, to materially assist the hospitals at Falaise and Argentan, where there was nothing in the way of supplies, and only the 36 cents allowed daily for each wounded man. This was absorbed by food and medicines, leaving nothing for bandages, gauze and cotton.

"I hope you may urge the shipment of as many hospital garments, as much absorbent cotton, bandages and other useful articles as it is

possible to send. The hospitals are crowded with the wounded from the recent battles, and everything that the American Red Cross can send over will be more than welcome to these poor sufferers. Our coffers and shelves are empty for the moment, and it is very painful to have to refuse and postpone relief which one knows may be the prevention of so much pain and suffering."

"Gen. von Pfuel, president of the German Red Cross, reports:

"Hospital garments and hospital bed linen would be very welcome. Also all surgical dressings, absorbent cotton, gauze and bandages of all sorts, and especially those three or four inches broad we can use to great advantage."

"As there has been a mistaken idea that the American Red Cross has ceased sending supplies to Europe, I write to say that we are shipping weekly large quantities of supplies to the various countries involved in the war, and, with the assistance of the public, will continue to do so. Circulars stating what articles are most needed will be supplied on application to the American Red Cross, Washington, D. C. All boxes of supplies should be sent to the American Red Cross, Washington, D. C. All boxes of supplies should be sent to the American Red Cross, Bush Terminal, Brooklyn, N. Y. Individuals wishing, may designate, if they so desire, to what country or to what particular institution their contributions are to be sent. Undesignated supplies are used by the Red Cross wherever the need seems to be the greatest."

Miss Louisa P. Loring, a Red Cross Emergency Secretary for Massachusetts, makes the following additional comment upon Miss Boardman's letter, with particular regard to the local work which is being done in that state:

"The Red Cross sewing circles in the different cities of Massachusetts are again taking up the winter work for the sick and wounded. The sewing room at 685 Boylston street is the chief authorized Red Cross sewing room in Boston. The Public Interests League is again generously giving rooms in this building for all who wish to make supplies for the European sick and wounded. The invitation is renewed to all to join in this work regardless of political opinion. Help is greatly needed, not only to make supplies, but for the materials to work with."

On Oct. 30 the totals of the principal New England relief funds for the European War reached the following amounts: Polish Fund, \$55,008.69; British Fund, \$35,179.36; French Fund, \$20,856.06; LaFayette Fund, \$10,878.99; Italian Fund, \$9,642.20; Armenian Fund, \$7,562.00; Surgical Dressings Fund, \$5,827.00.

BOSTON AND NEW ENGLAND.

PLYMOUTH DISTRICT MEDICAL SOCIETY.—On Oct. 21 the Plymouth District Medical Society held its annual fall outing at the State Farm, Bridgewater, Mass., as guests of Dr. E. B. Emer-

son, the medical director. There was an attendance of over fifty members, the largest outing the society has ever held. Dr. N. O. King of Brockton, Mass., presided.

Dr. Emerson read a paper on the farm, dating from 1852, and J. Arthur Taylor, master of the institution, spoke on the work. Medical Examiner Dr. A. E. Paine of Brockton, and Dr. Charles F. Withington of Boston, president of the State Association, spoke.

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.—The semi-annual report of the Instructive District Nursing Association shows a large increase in the volume of work accomplished over the preceding six months. Five hundred and four more patients were treated and a total of 2600 more calls were made. In all, more than 13,000 homes were visited.

FOOT AND MOUTH DISEASE IN MASSACHUSETTS.—After careful inspection of Worcester County, where the outbreak of foot and mouth disease occurred, Dr. Howard, Commissioner of Animal Industry, has withdrawn the quarantine from Brighton and public sale is allowed. The quarantine in Worcester County is released with the exception of the farm in Leicester where the disease occurred, and a radius of five miles from the farm. The Department of Agriculture at Washington has issued a pamphlet urging co-operation on the part of the individual for the common welfare and safety in the control of this disease. The great economic loss to the country should foot and mouth disease among cattle become general, as it is in Holland and Germany, is pointed out and the fear expressed that should swine become infected the entire industry might be wiped out.

TYPHOID AND SCARLET FEVER IN LEXINGTON AND ARLINGTON.—There have been reported in Lexington four cases of typhoid fever and twelve cases of scarlet fever, the latter all among children. The suspected source of infection is the milk supply but analysis of the milk has failed to reveal any traces of typhoid germs. In Arlington, near the Cambridge line, a total of sixteen cases of scarlet fever have developed. Most of the cases are mild and it has been thought not dren. The suspected source of infection is the children who contracted the disease have attended.

MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.—A quarterly meeting of the Massachusetts Association of Boards of Health was held in Boston on Thursday of last week, Oct. 28: After luncheon the following topics were discussed:

What are the present defects in the executive and financial status of boards of health of large towns of Massachusetts? Discussion opened by E. A. Ingham of Boston and W. E. Brown of York, Me.

What is meant by "Septic Sore Throat?" Discussion opened by Dr. Eugene R. Kelley of Boston.

Should boards of health furnish hospital treatment free to persons with certain contagious diseases? Discussion opened by Dr. F. P. Denny of Brookline.

Is there a need in Massachusetts for short educational courses for health officers? Discussion opened by Professor W. T. Sedgwick of Boston.

MASSACHUSETTS STATE CONFERENCE OF CHARITIES.—The twelfth annual session of the Massachusetts State Conference of Charities was held at Pittsfield, Mass., on Friday, Oct. 22. The general program of exercises at this meeting was published in the issue of the JOURNAL for Oct. 21. At the close of the session the following officers were elected for the ensuing year: President, Edward T. Hartman of Boston; vice-presidents, William F. Shannon of Northampton and Mrs. Ada E. Sheffield of Cambridge; secretary, George R. Bedinger; and treasurer, James A. McMurray, both of Boston.

MOVING PICTURES ON PUBLIC HEALTH.—It is announced by Dr. Allen J. McLaughlin, Massachusetts Health Commissioner, that the State Department of Health will furnish to such cities and towns of the Commonwealth as may make application therefor a series of moving picture films illustrating various topics of public health, with a lecturer to interpret the films. A series of six or eight different subjects has been prepared, such as Tuberculosis, Child Welfare, Adult Diseases, School Hygiene, Farm Health, and Cancer. The following cities and towns have already made application for the use of these films: Arlington, Cambridge, Billerica, Greenwood, Groton, Medway, Melrose, Millbury, Milton, North Wilmington, Hubbardston, Quincy, Rockland, Wales, West Medford, West Newbury, Waltham, Whitman, and Winthrop.

PREVALENCE OF DISEASE IN MASSACHUSETTS.—The monthly bulletins of the Massachusetts State Department of Health for August and September, 1915, present the usual data of the prevalence of diseases in this Commonwealth in that period. During the first seven months of the year 1915 there were in this state 38 cases of poliomyelitis, but in August there were 25 new cases and in September 14, representing 23 separate localities and communities. Seven of the total number of cases have been in Boston.

During the month of August 591 new cases of tuberculosis were reported as compared with 44 new cases in August, 1914. In September, 1915, there were 565 new cases of pulmonary tuberculosis and 58 of other forms of the disease.

There were 521 cases of diphtheria in August and 597 in September, 1915. In August there were 475 cases of whooping cough and in September, 450. There were 233 cases of typhoid fever in August and in September 321.

RED CROSS FIRST AID CLASSES.—It is announced that the First Aid Classes of the Massachusetts Red Cross are to be resumed during the current month. Anyone desiring to join these classes should apply at the Red Cross Headquarters, 603 Boylston Street, Boston. Dr. Richard P. Strong is honorary chairman, and Dr. George C. Shattuck, chairman of the committee in charge of the courses. Other physicians on this committee are Dr. Walter Howe and Dr. A. M. Fraser.

MEDFORD VISITING NURSE ASSOCIATION.—The annual report of the Visiting Nurse Association of Medford, Mass., shows a highly commendable activity on the part of that organization. The Association has three departments, that of the visiting nursing, the anti-tuberculosis committee and the bureau of friendly help. The visiting nurse has already demonstrated her important place of usefulness in any community. The number of visits made by the nurses last year in this city was 2270.

"The Anti-Tuberculosis Committee handled 24 cases during the year, of which 18 were definitely tubercular. The committee is a member of the Massachusetts Anti-Tubercular Committee, which embraces practically all similar agencies throughout the state.

"The Bureau of Friendly Help was established four years ago, during which period the volume of its work has greatly increased. From 374 visits, 130 office calls and 32 new cases in its first year, it had in 1915, 1582 visits, 844 office calls and 71 new cases.

"A sub-committee in charge of supplies received and distributed last year 1585 articles, exclusive of special gifts at Christmas and Thanksgiving. Clothing, household supplies, food and medicines go through the hands of the association, which, as a distributing agency, has peculiar facilities for knowing where is the greatest need, and relieving that need with least confusion or duplication."

MEMORIAL HOSPITAL AT IPSWICH.—It is reported that Richard P. Crane of Chicago, a resident of the summer colony at Ipswich, Mass., has announced his intention to give to that town a general hospital. It will be erected as a memorial to Benjamin F. Cable, a friend of Mr. Crane who was recently killed in an automobile accident.

Obituary.

WILLIAM GEORGE KIMBALL, M.D.

Dr. WILLIAM GEORGE KIMBALL died at his home in Huntington, Mass., October 20, 1915, aged 68 years. He was born in Topsham, Vt.,

Dec. 25, 1846, the son of Joseph P. Kimball and Melvina Greene. He was a lineal descendant of Richard Kimball, who came to America from England in 1634 and settled within the present limits of the city of Boston. His minority, with the exception of three years spent in Illinois, was passed in his native state. He was orphaned in childhood and lived on a farm.

By his own efforts he gained an education, graduating from the Bradford (Vt.) Academy and Dartmouth Medical School where he received his degree in 1875. After graduation he became resident physician at Rainsford Island, Boston, and later held a similar position in the Hospital for the Insane at Northampton. In 1877 he was appointed assistant resident port physician at Deer Island, Boston. In 1879 he joined the Massachusetts Medical Society and moved to Worthington, staying there until 1885 when he took a post-graduate course in New York. That same year he settled in Huntington and had lived there ever since.

Dr. Kimball was a member of the Huntington Masonic lodge and was a Republican in politics. He served as chairman of the school board for seven years and held various other town offices. From 1899 to 1909 he served as medical examiner for Hampshire County and resigned then because of the interference of the office with his professional duties. He represented his district in the Legislature in 1895 and 1896.

In 1878 he married Miss Laura Bartlett of Claremont, N. H. Dr. Kimball is survived by his widow, his son, William J. Kimball, and three grandchildren, all of Huntington.



WILLIAM NOYES, M.D.

Dr. WILLIAM NOYES, for fifteen years superintendent of the Boston Insane Hospital, died October 20, 1915, at his home in Jamaica Plain.

He was born in Boston, November 6, 1857, and was educated at Harvard College, where he was graduated with the class of 1881, and at the Harvard Medical School, graduating in 1885. In September of that year he accepted a fellowship in psychology at Johns Hopkins University. After a brief service as resident physician of the Baltimore Lunatic Hospital, he became an assistant at the Bloomingdale Asylum in New York. Still later, in 1889, he was connected with the McLean Asylum, then in Somerville.

"With the exception of a nine months' absence spent in study at Vienna and in Berlin, he devoted the next three years to the organization of a laboratory at McLean Asylum for special research in psychiatry and neurology. For three years he was assistant physician at the Hospital for Dipsomaniacs and Inebriates at Foxboro. In April, 1896, he was appointed medical superintendent of the men's department of the Boston Insane Hospital, and later was placed at the

head of the institution. This position he resigned in 1910, when he again began to practice medicine.

He was a Fellow of the Massachusetts Medical Society, a member of the American Neurological Association and of the Boston Society of Neurology and Psychiatry.

Dr. Noyes married Miss Lucia M. Clapp of Montague in 1894. He is survived by his widow and two sons, William Noyes, 3d, a freshman at Harvard, and George Clapp Noyes.

Miscellany.

EVANS MEMORIAL LECTURES.

The Massachusetts Homeopathic Hospital has announced for the current season the following course of free public health talks to be given in the Evans Memorial Building, under the auspices of the Department of Clinical Research and Preventive Medicine on Tuesday evenings at 8 o'clock:

Nov. 2—"State and Municipal Health Precautions," Selskar M. Gunn.

Nov. 9—"Some Laws of Reproduction," Dr. A. W. Weyss.

Nov. 16—"How to Secure Better Medical Service for Less Money," Dr. Richard C. Cabot.

Nov. 23—"The Immigrant and Public Health" (illustrated), Dr. George W. Tupper.

Nov. 30—"Mouth Hygiene: Its Relation to General Health" (illustrated), Dr. Leroy S. Miner.

Dec. 7—"The Care of the Feet" (illustrated), Dr. Gilbert M. Mason.

Dec. 14—"The Care of the Hair" (illustrated), Dr. Wesley T. Lee.

Dec. 28—"The Choice of a Vocation," Dr. DeWitt G. Wilcox.

Jan. 4—"Rational Child-Bearing," Dr. George H. Earl.

Jan. 11—"The Conservation of the Worker" (illustrated), Dr. Francis D. Donoghue.

Jan. 18—"The Air We Breathe" (illustrated), Dr. Helmuth Ulrich.

Jan. 25—"As a Man Thinks," Dr. Frank C. Richardson.

Feb. 1—"Facts About Sea Food" (illustrated), Dr. David L. Belding.

Feb. 8—"Sub-Standard Children," Dr. Walter E. Fernald.

Feb. 15—"The Taking and Giving of Colds," Dr. George B. Rice.

Feb. 29—"Occupational Diseases," Dr. David L. Edsall.

Mar. 7—"The Man of Fifty," Dr. Elmer E. Southard.

Mar. 14—"Occupation for Invalids" (illustrated), Miss Susan E. Tracy.

Mar. 21—"Change of Life," Dr. Eliza B. Callhill.

Mar. 28—"The Brain," Dr. Solomon C. Fuller.

April 4—"How the State Provides for Its Mentally Sick" (illustrated), Dr. L. Vernon Briggs.

April 11—"How to Choose a Doctor," Dr. W. P. Bowers.

April 18—"Microbe Invaders and Our Defenders" (illustrated), Dr. W. H. Watters.

April 25—"Sleep and Dreams," Dr. Edward Willys Taylor.

May 2—"Summer Care of Babies" (illustrated), Dr. Karlton G. Percy.

May 9—"Demonstration in Public Health Nursing," under the direction of Miss M. H. P. Bridges.

SOCIETY NOTICES.

THE HARVEY SOCIETY.—The second lecture of the series will be given at the New York Academy of Medicine, 17 West 43d Street, on Saturday evening, November 6, 1915, at 8.30 p.m., by Prof. A. J. Carlson, University of Chicago.

Subject, "Recent Contributions to the Physiology of the Stomach."

NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.—Stated meeting at United States Hotel, Boston, Thursday, November 4, 1915, at 11.30 a.m.

Dr. A. J. A. Hamilton, of Boston, will give a Lantern Demonstration of Gastric and Duodenal Ulcers for Dr. Charles Whelan, of Hingham.

F. H. MERRIAM, M.D., *Secretary.*
South Braintree, Mass.

NEW ENGLAND PEDIATRIC SOCIETY.—The joint meeting of the New England Pediatric Society, Pediatric Section of the New York Academy of Medicine and the Philadelphia Pediatric Society will be held in Philadelphia, November 8, 1915.

The day will be spent in visiting the various hospitals, clinics and laboratories.

At 8.30 p.m. the following papers will be read:

"Lobar Pneumonia; the Co-Relation of Its Symptoms and Physical Signs with the Findings of the Roentgen Ray," Dr. Howard H. Mason, New York.

"Studies on Tuberculosis in Infancy," Dr. Charles Hunter Dunn, Boston.

"Experimental Studies and Clinical Values of the Guinea-Pig Test for the Virulence of the Diphtheria Bacilli," Drs. John A. Koimer, Samuel S. Moody, Emily L. Moshage, Philadelphia.



NOTICE.

CENSORS' EXAMINATION.

The Censors of the Suffolk District Medical Society will meet to examine candidates for admission to the Massachusetts Medical Society at 8 The Fenway, on Thursday, November 11, 1915, at 2 p.m.

Candidates, who must be residents of the Suffolk District or non-residents of Massachusetts, should make personal application to the Secretary and present their medical diplomas at least three days before the examination, between the hours of 4 and 5 p.m.

DAVID CHEEVER, *Secretary.*

355 Marlborough St., Boston.

The Boston Medical and Surgical Journal

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LEGISLATION FOR THE INSANE IN MASSACHUSETTS, WITH PARTICULAR REFERENCE TO THE VOLUNTARY ADMISSION AND TEMPORARY CARE LAWS.*

BY FRANKWOOD E. WILLIAMS, M.D., BOSTON,

Executive Secretary, Massachusetts Society for Mental Hygiene.

THE number of persons suffering from mental disease in Colonial times does not seem to have been sufficiently great to have made much of a problem. Neither the Colonial nor the Provincial laws make any reference to the class, with the exception of two provisions: one in the Body of Liberties (1641), providing that "Children, idiots, distracted persons and all that are strangers or new comers to our plantation shall have such allowance and dispensations in any cause, whether criminal or other, as religion and reason require,"¹ and the other in the Colonial Laws of 1641, providing that "Any conveyance or Alienation of land or other estates what so ever, made by any woman that is married, any children under age, idiot or distracted person, shall be good if it be passed and ratified by the consent of a General Court."²

The first Massachusetts law providing for the

* Read before the Bristol North District Medical Society, April 15, 1915. Read before the Essex North District Medical Society, May 5, 1915.

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care of insane persons was passed in 1797.[†] The method adopted in providing this care is of particular interest, as it speaks eloquently of the general conception of insanity held at the time. In 1788, a law had been passed entitled, "An act for suppressing rogues, vagabonds, common beggars and other idle, disorderly and lewd persons,"[‡] which provided commitment to the house of correction by two justices of the peace. When, in 1797, the general court wished to provide for the insane, it amended the act of 1788 by inserting in the list with "rogues, vagabonds, common beggars and other idle, disorderly and lewd persons," the words "lunatic persons."

At the opening of the nineteenth century, insanity, in the opinion of most people, was a moral rather than a physical disease. Devilcraft was largely given up, but the theological idea that had taken its place—that insanity is pure mental and moral perversion, and represents the outbreak of the animal and violent elements of the fallen human soul which have culpably been permitted to get the upper hand of the higher attributes—was hardly more favorable to the sufferers from mental disease. To be sure, leaders in Europe had been urging that insanity was a disease comparable to physical disease. Rush had read a paper (1786) before the American Philosophical Society, "On the Influence of Physical Causes upon the Moral Faculty," and some practitioners were leaning feebly towards this idea. One physician "after forty years' experience" wrote (1806) that he was "not sure" but was "inclined to think in-

¹ Laws of 1797, Chap. 62, § 3.

² Passed March 26, 1788.

sanity due to a morbid condition of the brain."¹³ But the idea was not popular, and made little headway against the religious, moral and metaphysical notions of the time. Insanity was a disease of the mind, it was held, and the mind was the seat of the soul. The relation that the brain might have to all this was little regarded. That insanity was a moral disease found strong expression even as late as 1830. Coleridge, in his "Table Talks," probably expressed the opinion of most educated people of the time when he wrote:—

"Madness is not simply a bodily disease. It is the sleep of the spirit with certain conditions of wakefulness; that is to say, lucid intervals. During this sleep or recession of the spirit, the lower or bestial states of life rise up into action and prominence. It is an awful thing to be eternally tempted by the perverse senses. The reason may resist—for a time; but too often, at length it yields for a moment and the man is mad forever."¹⁴

Thomas Cooper, M.D., (1831) in the preface to his translation of Broussais' "On Irritation and Insanity," speaks with intense feeling of the enmity of the clergy and the ignorance of the medical profession on the subject of the somatic nature of insanity, and so great did he feel the opposition and ignorance to be that he incorporated in the book a tract on materialism and a paper, "An Outline on the Association of Ideas."¹⁵

John Barlow, in 1843, writing "On Man's Power Over Himself to Prevent or Control Insanity," said, ". . . the being sane or otherwise, notwithstanding considerable disease of the brain, depends on the individual himself. He who has given a proper direction to the intellectual force and thus obtained an early command over the bodily organs by habituating it to the process of calm reasoning, remains sane amid all the vagaries of sense; while he who has been the slave, rather than the master of his animal nature, listens to its dictates without question, even when distorted by disease—and is mad. A fearful result of an uncultivated childhood!"¹⁶

The trustees appointed to superintend the construction of the Worcester Lunatic Asylum make note of this popular feeling in their first report, stating that "the universal opinion has been that it (insanity) was an awful visitation from Heaven, and that no human agency could reverse the judgment by which it was inflicted."¹⁷ They take a position against this view, but further in their report show how firmly entrenched the metaphysical conception must have been in that they were not wholly free of it themselves. In outlining their plans for the treatment of patients they provide, if necessary, an attendant to each patient, "whose duty it is to remain constantly at his side to occupy his (the patient's) attention with pleasant themes

. . . to soothe and pacify that portion of the mind which had been excited to frenzy and *so to allow those faculties whose action remained undisturbed to gain the ascendancy.*"¹⁸ Further, they are to provide for their patients beautiful scenery, so that "the restorative influences of nature may strike some chord in the heart as yet unbroken in the fatal struggle with worldly disappointments."¹⁹

Amid such conceptions, the McLean Hospital was opened in 1818. Insanity being considered incurable, the hospital was planned to serve humanitarian purposes rather than medical. It is interesting to observe that no new legislation relative to the status of insane patients was considered necessary upon the opening of the hospital. The law of 1797 was still in force, and a new law had been passed in 1816 providing that any person acquitted of crime because of insanity might be committed to jail by any justice of the supreme judicial court until he recovered. But neither the law of 1797 nor the law of 1816 affected the McLean Hospital. Access to it was as free and upon the same basis as access to any hospital. The hospital was opened for the care of persons suffering from insanity whose friends or family desired them cared for, and it seemed quite logical and proper at that time that such persons should be received in the same manner as another member of the family might be admitted to the Massachusetts General Hospital.

During the late twenties, a new interest was aroused in the insane. Word came from the better hospitals of England and this country that the condition in its early stages was largely curable; that the insane neglected in cages and pens, cellars, outhouses, prisons and almshouses were hopeless, but much, if not all, of this could be prevented if insane individuals were given proper treatment sufficiently early. On the wave of enthusiasm created by this new idea, the Worcester Lunatic Hospital was ordered built, and was opened in 1833. All persons to be committed thereafter under the laws of 1797 and 1816 were ordered committed to the custody of the hospital at Worcester, and all confined in jails or houses of correction under order, decree, or sentence of any court, or any judicial officer by virtue of the above statute were ordered to be sent to the Worcester Hospital as soon as practicable.

Up to the time of the opening of the Worcester Hospital patients were committed by order of any two justices of the peace or by a justice of the supreme judicial court. With the opening of the Worcester Hospital, the power of committal was taken from the justice of the peace and bestowed as follows: "Judges of Probate in all counties except Suffolk—in Suffolk the Judges of the Municipal Court—in addition to the Justice of the Supreme Judicial Court and the Court of Common Pleas."²⁰ The law of

* Acts of 1833, Ch. p. xciv.

1833 further specifies that the judges shall commit those "so furiously mad as to render it manifestly dangerous to the peace and safety of the community that such lunatics should continue at large." It did not call upon the judge to decide, nor give him right to decide, whether the person before him were sane or insane, but whether he was "so furiously mad" as to be a danger to the community. The obvious intent of the law was not that the judges should control the admission of patients to the hospitals, but that they should be given power to commit those who might resist such admission and whose presence at large would be a danger. This law did not prevent the free access to the hospitals of those who desired such admission. Admission to the Worcester Hospital was as free and informal at this time as had been the admission to the McLean Hospital in the preceding fifteen years. That the law was so conceived and understood is borne out by the fact that the superintendent in his reports notes those who have been committed "by friends" without court action, and urges friends and relatives to bring their insane patients as early as possible.

Further evidence of this interpretation is the law passed in 1836, which provided that "the trustees may also, in their discretion, receive into the hospital for a less sum (than the actual expense) any poor persons suffering under recent insanity, whether supported or not by any town or city."[†]

Public care of insane persons was new in Massachusetts. There were no precedents to follow. It is not surprising, then, that a spirit of uncertainty as to the best method of procedure should be manifested in the changing of the laws from time to time during the early years of the hospital. In 1834, a provision was added to the effect that "Any person or persons making application (for commitment) must first give notice in writing to the selectmen, or either of them, in the town, or to the mayor of the city where such lunatic resides, of the intention so to apply" and that "satisfactory evidence that this has been done be presented to the judge."[‡] This provision was slightly changed in 1836.[§]

In 1837, trial by jury was provided for.^{||} This provision for a jury in cases of lunacy did not come from distrust of the hospitals or their officers, nor from any feeling that the determination of lunacy was a lay or legal rather than a medical matter. It must be held in mind that at this time access to the hospitals was free, and that the courts were called upon to decide merely whether a patient's madness made him a sufficient danger in the community to warrant his forcible detention. The suggestion for a jury trial came originally from Dr. Samuel Woodward, first superintendent of the Worcester Lunatic Hospital. In his fourth annual

report (1836) he had cited the fact that the courts have a right to commit any persons who are a danger to the community, had asserted his confidence in the courts, but had added, "the spirit of our institutions is adverse to the uncontrolled exercise, by any tribunal, of so great a power as this. It should guard with scrupulous jealousy against every possible encroachment upon the liberty of the citizen under whatever pretense; and we would respectfully propose such a modification of the statute as would in every case, recur to the individual or to his friends, if they should think proper to claim it, the right to have the facts in the matter of dangerous lunacy determined by a jury."^{**}

In 1839, a law was passed authorizing the City of Boston to build a hospital.* Power of commitment was lodged with the municipal court. In 1840, this power of committal in Boston was taken from the municipal court and given to the police court "saving to the person complained against the right to appeal from such order to the Municipal Court of the City of Boston."[†]

By 1840, opinion in regard to the method of procedure seems to have been settled, and from that time until 1853, a period of thirteen years, no changes were made. In fact, no serious changes were made after the law of 1833 had been slightly amended in 1834. For a period of practically twenty years, the procedure outlined in these laws was followed, and the hospitals were permitted to perform their service without further legal obstruction.

The Worcester Hospital opened its doors under very favorable auspices. The plan for taking the insane from their former wretched surroundings, caring for them, and restoring them to health and usefulness was very popular. The hospital was hailed as the "state's greatest charity" and was a source of great pride to the commoner. But the hospital had been opened under a misapprehension, with hopes that could not be fulfilled, and the results of this, and the conscientious mistakes made by the early superintendents and trustees in encouraging these false hopes, are still to be noted today. The commissioners who had been appointed by the governor of the Commonwealth to supervise the erection of the hospital at Worcester,—Horace Mann, Bezaleel Taft, Jr., W. B. Calhoun,—said in their first report, "It is now most abundantly demonstrated that with appropriate medical and moral treatment insanity yields with more readiness than ordinary diseases." Further, that "fifty, sixty, and in some instances ninety per cent, recover in well regulated institutions." "As early as 1827," says Pliny Earle, "by a combination of fortuitous and favorable circumstances, Dr. Todd of the Hartford Retreat was able to report the recovery of 21 out of 23 recent cases of insanity received into that institution.

* Revised Statutes, Chap. 48, § 8.

† Acts of 1834, Chap. CL.

‡ Revised Laws (1836), Chap. 48, Sect. 7.

§ Acts of 1837, Chap. 228, § 1.

** Acts of 1839, Chap. 131.

† Acts of 1840, Chap. 79.

This remarkable result was reduced to a formula and the percentage (92.3) thus derived from less than one-quarter of a hundred cases was published and became more or less a criterion by which to measure the possibilities of all recent cases.¹⁰

As Earle points out, the decennium 1827-1837 was an age of big men—Woodward, Bell, Awl, Butler, Brigham, Kirkbride, Stribling, Ray, McFarland. These were men of rare abilities, loftiness of purpose, and enthusiasm. Their very enthusiasm, however, carried them into a competition that proved in the long run harmful. "Before each of them stood the stimulating and provocative precedent of erroneous percentages, and around each of them was the competitive ability of his colleagues in the specialty. It is no cause for marvel that under these circumstances a public opinion was formed upon the curability of insanity too favorable to be sustained by the experience of the future. This opinion was enunciated by a few superintendents at an early date, but considered as an established idea in the minds of the people, it was the fruitage of the decennium in question more than of any other in the whole history of the past; and thenceforward it has very generally been claimed that of all cases of insanity of less duration than one year, from 75 to 90% are susceptible of cure. For more than forty years with respect to a few, and more than thirty years in respect to many, this has been the shibboleth of the superintendents of hospitals and of other writers upon the subject of mental alienation; and especially has it been depended upon as one of the crowning arguments in favor of the establishment of new hospitals and the enlargement of old ones, and of appeals to hesitating and reluctant legislatures for additional appropriations of money for the completion of unfinished ones, for which the purse of the Commonwealth has already been taxed beyond the bounds of reason and of patient endurance."¹¹

The first annual report of the Worcester Lunatic Hospital states that of 25 recent cases, 12 had been discharged cured. The second report gives the total per cent. cured as 55.75: old cases cured, 20.5; recent cases, 82.25. The third report gives 82.50% of recent cases cured. In 1840, Dr. Woodward prepared a table which showed that 88% of those who had been insane less than one year were cured, 57% of those insane from one to two years, 37% of those insane from two to five years, and 11% of those insane from five to ten years. This table was used by Waterson in his "Report on the Condition of the Insane in Massachusetts in 1843," as an argument urging provision for greater facilities at Worcester,¹² and eleven years later, in the report of the commission appointed to report on insanity and idiocy in Massachusetts,¹³ the statement is still made that if the disease be submitted to proper remedial measures, three-fourths or nine-tenths may be restored, and this

proportion of the patients made again self-supporting members of society. Other hospitals throughout the country were making the same favorable reports. In 1841, Pliny Earle, later superintendent of the Northampton State Hospital, compiled the following table from the reports of the various hospitals:¹⁴

Asylum.	Time.	Percentage of Cures in Recent Cases.
Dr. Burrows'		91.32
Vermont State	3 years	89
Vermont State	1840	88.20
Massachusetts State	1833-40	87.20
Massachusetts State	In 1840	91.25
Ohio State	1839-40	85.50
Bloomingdale	In 1839	83.87
Retreat, Conn.	6 years	75.95
Retreat, Conn.	4 years	91.60
Average.		87.10

There is no doubt that the superintendents in publishing such figures intended to be honest both with themselves and with the public. The error lay in the method of computation. The percentage of cures was based, not upon the number of patients admitted, but upon the number discharged, so that a hospital having received a hundred patients during the year, and having discharged 24, of whom 12 were cured, reported a percentage of 50 instead of a percentage of 12. A further mistake was made in counting the number of cases discharged instead of the number of patients. Six recoveries might represent but one person, admitted and discharged six different times during the year. In one hospital, one woman was reported recovered nine times in two years; in another, five persons 32 times; in a New York hospital, "for one woman, 46 recoveries were reported in the course of her life, and she died upon her 59th admission."¹⁵

Encouraged by the hope created by the figures given above, legislatures all over the country were quick to build hospitals, hospitals built were soon filled to overflowing, and additions or new hospitals were erected. During this period of confidence and expectation when the hospitals enjoyed the enthusiastic support of the community (1833-1858) the Worcester Lunatic Hospital was twice enlarged (1835, 1843); the Boston Lunatic Hospital (1836), the Taunton (1854), and Northampton Hospitals (1858) were built. So great were the demands made upon the hospitals that the superintendents soon became engrossed in the many detailed problems of hospital management. At the formation of the Association of Medical Superintendents of American Institutions for the Insane, in 1844, sixteen committees were appointed, only five of which pertained in any way to medical subjects, and one of these was on the "Moral Treatment of the Insane." The papers read at the meetings of the Association were largely upon subjects of hospital management, such as, "Proper Size of a Hospital," "Dietary," "Building," "Proper

Number of Patients to an Institution," "Relative Value of Different Kinds of Fuel for Heating Purposes." In the early meetings of the Association, little or no mention is made of legal matters, but later (1863-69), stung by adverse criticism, the Association found it necessary to devote a great deal of its time to the consideration of this subject. That the views of even these leaders of psychiatry were still tinged with metaphysical conceptions, even though they were urging the physical view, is evidenced in the causes of insanity assigned by them: "Indulgence in temper," "mortified pride," "agitation on the approach of matrimony," "metaphysical hair-splitting," "predisposition excited by novel reading," "the complete gratification of every wish of the heart." Another cause that is of interest today, although not a metaphysical one, is "changes from ordinary to vegetable and abuminous diet."¹⁶

The superintendents in the early days were autocrats. This is not surprising in view of the fact that at that time all physicians were more or less autocratic. Unlike the present day—when any person who has reached the high school age apparently has a right to opinions upon medical topics, and when there are almost as many views upon medical subjects as there are persons in the community—the physician was the only person in the community who was supposed to understand medical matters. When he took charge of a case he took command. He expected his judgment to be taken, and his directions to be obeyed. The superintendents were medical men, and medical men primarily, and they naturally felt that they alone should know what was best for their patients. They resented interference in the care of their public patients as they would have resented it in the management of private cases. This attitude was accepted by the public without question at first, but later came to be resented. One of the principal methods of treatment used at that time was the so-called "moral" treatment, an "entire change of surroundings, whereby all existing trains of associations are broken and the mind is introduced to new persons, new things and new scenes."¹⁷ In carrying out this plan of treatment, correspondence and visits of friends and relatives were frequently denied. The motives for such treatment were misunderstood, and further antagonism was aroused.

During the twenty years just discussed, the hospitals have had little or no opposition. It was becoming apparent, however, by the end of this period that the hopes held out in the beginning were not being fulfilled. It had been found that insanity was not so easily cured as had been supposed; that many of those who had been pronounced cured in the early beginnings had sooner or later become again insane; that aside from what had been accomplished from a humanitarian point of view, little had been accomplished of permanent value. The high hopes of 1833

were dashed by 1853, and the reaction that might have been expected, augmented by the ill-feeling that had developed as the result of the autocratic attitude of the superintendents, and the misunderstanding that had arisen from the isolation of the patients while being given "moral treatment," set in. Discontent and suspicion began to take the place of confidence and enthusiasm. This restlessness is noted in the legislation. Although there had been practically no change in the legislation for twenty years (1833-1853) in the ten years from 1853 to 1863, the method of procedure in insane cases is changed five different times.* The most noteworthy change was made in 1862, when the phrase in the early law, "so furiously mad as to render it manifestly dangerous to the peace and safety of the community that such lunatic should continue at large," was changed to read, "any insane person who in their opinion is a proper subject for treatment and custody." The law further provided that "in all cases the evidence and certificate of at least two reputable physicians shall be required to establish the fact of insanity."

This law was the first bolt as it were, driven into the doors of the hospital, making more difficult their inward swing. From the opening of the McLean Hospital until the day this act was approved—a period of 44 years—admission to the hospitals had been without formality for those who desired admission or whose friends desired admission for them. The number thus admitted varied from year to year, depending upon the number of vacancies at the hospitals. The law required the hospital to admit all regularly committed to it as "dangerously mad," and the number of those commitments frequently left little room for voluntary, or, as they later came to be called, "bond" patients. Dr. Woodward drew attention to this repeatedly in his reports. In 1836, so many patients had been sent by the courts that only eight private patients could be admitted. He complained that chronic, incurable patients, at times idiotic and imbecile persons, not "dangerously mad" were being sent to the hospital, filling it up, crowding out the more hopeful early voluntary cases, and thus defeating an important purpose of the hospital. On one occasion he suggested that the trustees be given power to refuse admission to committed cases when the hospital was full, in order to obviate the necessity of discharging voluntary patients before they were fully recovered.¹⁸

And one is privileged to wonder if this abuse of the law and of the hospital was not in his mind when he urged that in certain cases the "furiously mad" and "dangerous" condition of a patient be determined by jury.

The effect of the law of 1862 was soon felt. Dr. Benis, the superintendent, in his report for 1863,¹⁹ comments as follows:—

* Acts of 1853, Chap. 19; Acts of 1856, Chap. 108; G. S. (1860) Chap. 73, Sect. 8; Acts of 1860, Chap. 73, Sect. 19; Acts of 1862, Chap. 223, Sect. 8.

"The recent laws regarding the signing of certificates of lunacy by physicians have operated in an unfavorable manner upon the admission of a few patients into the hospital, and must prevent the early admission of patients afflicted with certain forms of mental disease. The necessity for two physicians to testify to some definite fact which is of itself sufficient to prove insanity, is easily fulfilled in cases of acute mania, when the mind of the patient is completely absorbed in his present feelings and impulses, and has neither power nor inclination to exercise caution. In other forms of insanity, however, equally destructive in the end to all the reasoning and controlling powers of the mind, proof is not so readily obtained: the evidence is cumulative, and the patient retains much of his capacity for concealing symptoms and eluding the inquiries of his physician, and often refuses altogether to see a medical man. In this manner the patient escapes the treatment calculated to remove his disease, until it has become incurable. Sometimes a well meant but mistaken friend takes such a direction and exercises such an influence as to prevent the admission of the patient; or if it does not prevent admission, so disturbs the relation existing between patient and the hospital as to retard recovery and promote disorder and dissatisfaction. This difficulty is the source of great suffering to many families in this Commonwealth, who are obliged to bear the burden and anxiety consequent upon the care of some insane member, until the disease becomes continuous and incurable. Hospitals were undoubtedly created and endowed for the public good, and to answer a want felt by the community. Let the laws controlling admission to their wards be so humanely framed as to open their doors to any diseased member of society, and let the benefits, if any, be conferred alike upon every grade of mental suffering. Establish commissions for investigation, if necessary, guard them with the most zealous care; but while they are hospitals, make them also asylums, to which every sufferer may flee for comfort and help, or not longer enact laws which attach to the character and conduct of a residence in a hospital for the insane the stigma of prison life and discipline. Surround them with the most generous safeguards. Endow them with every facility for treatment and every comfort and convenience for their inmates. And by giving a generous impulse to public opinion, already favorable, assist in their elevation." The irritation that is detected in a part of this paragraph from Dr. Bemis's report is evidence of the pressure of adverse criticism that the hospitals were beginning to feel.

By 1863, the feeling had become sufficiently strong to force the passage of a resolution directing the governor and council to appoint a commission "to examine what changes, if any, are necessary in the laws regarding insane persons."^{2*} The commissioners appointed,—Josiah

Quiney, Jr., Alfred Hitchcock, M.D., and Horatio R. Storer, M.D.—made a report²⁰ wholly favorable to the hospitals, but the defense of the hospitals that the commissioners felt it necessary to make speaks plainly of the change in feeling that had taken place in twenty years. "Are patients wrongfully detained in insane asylums?" is the question the commission first finds it necessary to answer. "It has been thought," says their report, "that there is a possibility that two physicians may be found who, either in ignorance of the varying and deceptive symptoms of the particular disease, or through interested motives, may certify to insanity when ungoverned passions or jealousy only render a removal from the family circle desirable, and that superintendents might be bribed to keep the person in confinement." The commissioners reported that they had found no such case, and that the character and interests of superintendents made such a contingency improbable. They found it necessary to say further: "It is the opinion that the care of the Massachusetts hospitals for the insane is, at the present moment, in honest hands... Too little allowance seems hitherto to have been made for the excessively delicate and responsible position here occupied by Trustees and Superintendents, who, if worthy of appointment to their posts, should also be thought worthy of confidence and trust."

The popular feeling that was beginning to gather at the time is still more clearly shown in the statement that "it has been suggested that so-called 'protectors' of the insane be appointed to have no connection with any hospital, either as officer or trustee, who should have authority at certain or at all times to visit these institutions and examine the patients in general, or particular patients, and decide the question of the propriety of their retention; and by special statute, that patients should from time to time be allowed to write letters to their friends and others." The commission replied that these "protectors" could be no more depended upon than the trustees and "cannot be supposed to be such judges of insanity as those who have made the disease a study and who have opportunity to observe the patients in question from day to day." The commission, among other things, recommended a commission in lunacy, license for private hospitals, requirement for the detention of any person alleged insane, the certificate of two responsible physicians and the abolition of commitment by judges save in criminal cases.

Following the report of this commission to the legislature, in 1864, a law was passed providing for the licensing of private hospitals.* Favorable to the hospitals as was the report of the commission, the public feeling was such that the legislature felt it necessary to pass a law providing that "On petition under oath to any Judge of the Supreme Judicial Court, setting forth that the petitioner believes that some person confined as insane in any hospital or other authorized

* Acts of 1864, Chap. 288, Sect. 8, 9.

[†] Acts of 1864, Chap. 288.

^{2*} Acts of 1862, Chap. 81.

place for the treatment or restraint of insane persons, is not insane, and is unjustly deprived of his liberty, the Judge may, in his discretion, appoint three commissioners to inquire into the alleged insanity of the person so confined."[†]

Continued and growing discontent with the hospitals is shown in the legislation of the next ten years (1864-1874). Changes in legal proceeding or antagonistic legislation directed at the hospitals or their officers was passed five different times in this period.[‡] A feeling that persons were detained in hospitals and driven mad by their associates, developed rapidly and found expression in a commission appointed in 1874 to report "what alteration of or addition to the laws are necessary to guard the rights of the insane; what improvement may be made in the rules of the asylums touching attendance, general treatment of patients, and freedom of correspondence, and add all suggestions as their investigations may prove to be necessary. . . to guard and aid, etc. . . "[†] The two commissioners, Nathan Allen and Wendell Phillips, made separate reports.²¹ Each found grave danger to personal liberty in the methods of commitment then in vogue. Allen notes "that there has grown up and existed for some time an antagonism of feeling and interest between hospitals, the superintendents and trustees as a body, and the general public." He quotes one trustee as saying, "It seems as if the public believed that every man connected in any way with a hospital for the insane had entered into a conspiracy to deprive the patients of all of their rights and to do violence to all the relations of life." The prejudice, he says, springs from an impression that the managers of hospitals are unwilling to discharge patients when they have recovered. As to the officers themselves, he says: "While they (superintendents, officers and trustees) have their rights, which should be respected and properly treated, they do not own the institutions, neither are the latter run for their emolument. While their opinions and counsels come largely into account and they have a controlling voice in managing the hospitals, there are other parties, inside and outside, who have rights therein, and whose opinions are entitled to consideration. The claim and interest of these latter parties are vastly greater and more important than those of the former."

Phillips reports that the present methods are wholly wrong and dangerous and liable to great abuse. He doubts if a physician should be applied to in any case. Samuel E. Sewall, whose letter to the commissioners is incorporated in their report, is even more emphatic in his denunciation of the system, stating that it is based upon the false principle "that personal liberty is of little consequence," and urges that the question of an individual's sanity should be left with the judges.

[†] Acts of 1864, Chap. 288; Acts of 1865, Chap. 268; Acts of 1867, Chap. 355; Acts of 1871, Chap. 321, Sect. 1; Acts of 1874, Chap. 363.

[‡] Acts of 1874, Chap. 363, Sect. 3.

The senate committee on public charitable institutions, to which the report was referred, reported²² that it did not think it expedient to recommend any legislation in accordance with the suggestion of the commission. It further stated that "many of the complaints brought to the notice of the commission were trivial, some more serious, but taken care of by Trustees, and that, considering the large number of persons dealt with, the complaints were comparatively few." The members asserted also their confidence in the superintendents and trustees.

This report marks the high water mark of ill-feeling and distrust. The tide turns. Until 1879, there was no new legislation affecting the status of patients, and in 1882 a period of constructive legislation began, which in the thirty-three years that have followed has made Massachusetts a leader in enlightened legislation dealing with the care and treatment of those suffering from mental disease.

During these years there have been other forces at work, and if ill-feeling and distrust reached its culmination in 1874, these new forces began to find expression about 1882. There were several tributaries to this stream. It may be said to have started with the abolition of the theory of demoniacal possession; to have been augmented by the work of Pinel in France, the Tukes and Connolly of England, who demonstrated that chains and eages and other forms of restraint were unnecessary in the treatment of the insane; to have been helped by the teaching that insanity is curable, although as we have seen, this hope was greatly exaggerated and led to a degree of harm; and finally the "general acceptance of the somatic and the rejection of the psychic theory of insanity by establishing psychology on the basis of physiology and pathology—a scientific movement anticipated by John Hunter, begun by Bichot and Esquirol, carried out by Griesinger and Virchow."²³ The researches into pathology, anatomy, physiology and psychology, and later those into bacteriology and psycho- and neuro-pathology, have brought the question of insanity from the cloudy mysticism of metaphysics into the light of scientific conceptions, and established it as a disease among other diseases, and its sufferers patients to be treated on the same general basis as other patients. This new point of view is reflected in the legislation and thought of the present day. As has been mentioned, it first found expression in 1882 with the passage of the law* restoring voluntary admission to the state hospitals, and has found expression since in the Emergency Act, the Observation Law, and finally in the Boston Police Law, the Seven-Day Temporary Care Law, and the establishment of a psychopathic hospital for the care of early cases of mental disease and for research into the causes of mental disease and the means of prevention.

Massachusetts has six laws providing for the

* Acts of 1881, Chap. 272, Sect. 7.

temporary care of insane persons: that for the apprehension of an alleged insane person, (Sec. 34, Chap. 504, Acts 1909), the Emergency Law (Sec. 42, Chap. 504, Acts 1909), the Observation (Sec. 43, Chap. 504, Acts 1909), the Boston Law (Sec. 43, Chap. 504, Acts 1909), the Boston Police Law (Chap. 307, Acts 1911), the Seven Day Temporary Care Law (Chap. 395, Acts 1911), and the Voluntary Law (Sec. 42, Chap. 504, Acts 1909.) Of these six laws, four provide care without the necessity of court action. And it is in this that their great significance lies. This freer access to the hospitals seems like a new development. And for this generation it is a new development. As a matter of fact, however, it is but getting back to the fundamental conceptions of a hundred years ago. It has been pointed out how in the beginning access to the hospitals was free. Patients needing treatment could receive it without application to the courts. How for many years this continued, but how, through a growing prejudice and misunderstanding, due to the false hopes created in the minds of the people by superintendents who honestly entertained these hopes themselves; through the distrust which arose because friends did not sufficiently understand the object in isolating patients; through the fear that developed that individuals were being improperly confined, and that personal liberty was being violated, regulations pertaining to the admission of patients to the hospitals became more and more rigorous, until the time came when there was an almost insurmountable legal barrier about the hospitals. A medical matter became a legal matter. A judge who would hesitate to diagnose a case of heart disease exhibited no hesitancy in making a diagnosis of mental disease. And no matter what might be the opinion of some half dozen earnest and conscientious students of mental disease, the lay opinion of the judge decided the diagnosis. Happily this stage is being passed. It was well to have gone through it. The medical man, trained to note the physical and pathological aspects of the problems presented by his patients, and probably inclined to be a little careless of other considerations, has been taught that his patients do present other problems; that he is not a law unto himself, and that the personal liberties of his patients must be zealously guarded. The member of the bar, on the other hand, properly jealous of any violation of personal rights, has come to realize from the serious results that have followed upon unfortunate decisions, that the problem is after all a medical one, and one that only careful students of such conditions can hope properly to solve.

Considering the uncertainty in regard to the true nature of mental disease, the metaphysical and theological mysticism in which it was a generation ago enwrapped, it is not surprising that all this misunderstanding should have arisen. But as we have seen, the researches of the last twenty-five years have dispelled this mysticism;

have placed mental disease solidly in the ranks with other diseases; and have established the sufferers from such disease as patients, to be treated and cared for as patients. This conception is making it clear that an individual bereft of his reason has rights as an individual that must be protected, but that in protecting his rights as an individual we must not forget that he has rights as a patient, and that the hope of soon regaining his rights as an individual may largely depend upon the consideration that is given at a critical time his rights as a patient.

The Voluntary Admission Law provides that any person desiring admission to a hospital for the insane for the purpose of treatment may be admitted on his own application, providing he is sufficiently clear mentally to understand the nature of his act. The law further provides that no voluntary patient may be detained in a hospital longer than three days after that patient has given notice in writing that he desires to be discharged. Originally only those persons able to pay for the expense of their care and treatment could be admitted under this law, but in 1906 the act was amended so as to include all persons needing treatment. In an endeavor to see how generally this law has been used, Southard²⁴ has gathered statistics of admissions under it since 1895. From 1895 to 1899, 405 patients were admitted under this law to the state hospitals, including the McLean Hospital. From 1900 to 1904 there were 520. In other words, from 1895 to 1904 this act served in about a hundred cases a year. Beginning with 1906 there is a gradual increase, as shown in the following figures:—

Year.	Total.	Vol.	%
1906.....	2670	125	5
1907.....	3022	156	5
1908.....	3195	195	6
1909.....	3096	185	6
1910.....	3254	200	6
1911.....	3207	237	7
1912.....	3250	282	8
1913.....	4051	636	16

Since 1895, then, 5401 patients have been able to receive treatment in our state hospitals under this act without formal process of law. The law serves particularly those individuals who fear that they are becoming insane and wish advice and treatment. Many of these are psychoneurotic patients, who are not insane, but who much need proper and expert advice in order that they may successfully readjust themselves; some are patients in the early stages of mental disease and therefore greatly in need of care. Others who submit themselves under this law are early or mild dementia praecox cases, early depressions, and more frequently than would be supposed, early cases of general paresis. Eversole,²⁵ in a study of 389 voluntary admissions at the Psychopathic Hospital in 1913 found that 101 had been diagnosed "not insane," and 288 "insane." Of the 288 insane patients, 31 were cases of general paresis, and 66 cases of dementia praecox. None of the psychoneurotic patients, few of those suf-

fering from the earlier manifestations of mental disease, many of the early praecox cases, mild depressions, and cases of early general paresis would not be commitable in the regular form, and would be unable to obtain treatment except for this law. And when it is considered that every patient suffering from the depressed form of manic-depressive insanity is potentially suicidal, and that every patient in the early stages of general paresis is capable of grave social and economic wrong, the value of such a law to the individual and the community becomes apparent.

The Boston police law, providing that the police of Boston shall bring to the Psychopathic Hospital all persons brought under arrest who appear to be suffering from mental disorder, need not be discussed at length as it applies only to the Boston District. It is of interest to note,²⁰ however, that of 1523 admissions to the Psychopathic Hospital last year, 426 were admitted under this law. The law is particularly significant in that it provides for these individuals as patients rather than as criminals. The mother who becomes suddenly insane and hurls her baby from a second story window, the man or woman who, suffering from delusions of persecution, endeavors to wreak vengeance on his imagined persecutor, the petty thief or shoplifter with grandiose delusions that she owns an interest in a large department store, the hallucinated individual who is found scouting about the Fenway looking for "the enemy," instead of being taken to jail to be associated with real malefactors until such time as they may be examined and regularly committed (in the summer time probably three or four days), are taken immediately to a hospital where they are understood and properly cared for as sick persons. Although this law is not applicable outside the city of Boston, the same ends could be gained in the outlying districts by a wider use of the seven-day law on the part of police officials and physicians.

The seven-day law is applicable in any part of the state. This law provides that "any physician, member of the board of health, or police officer in any city or town, an agent of the Institutions Registration Department of the City of Boston, or member of the district police, may request the superintendent or manager of any hospital for the insane to receive for a period of seven days and care for any person needing immediate care and treatment because of mental derangement."

This law serves both as an emergency law for use when courts are not in session, or when, for one reason or another, there would be considerable delay in commitment, and as a very useful observation law. The use as an observation law is probably the more general in those hospitals where it is most frequently used. We are getting past the point where we are willing to wait until a depressed patient attempts suicide, a patient suffering from delusions commits homicide, or a patient in an early stage of mental disease

ruins his family financially by foolish ventures, and are coming to see that both society and the individual are best served when these things are prevented. Sudden insanity is a comparatively rare thing. The beginning is usually insidious; for weeks or months before a frank attack the friends and family note that the patient is not "just himself," that his actions and conversation are somewhat peculiar or unusual. The patient himself is frequently puzzled, does not understand himself and wonders what may be the matter with him. In self-defense, however, he often asserts, if questioned, that there is nothing wrong with him. The family physician, if called, notes the peculiarities, has a feeling that the patient is "not just right," but does not feel that he can say that the patient is insane, and decides to wait for further developments. These developments come only too frequently in the form of some act that shocks not only the physician and family, but the community. Scarcely a day goes by that the newspapers do not carry one or more stories of suicide in fits of depression, or homicides by insane patients, or both. The people of Boston were recently shocked when they read in their morning papers that during the night a well-known and respected young man had murdered his wife and three children and had then committed suicide. The family physician had been observing the young man for several weeks, "had a feeling" there was something wrong with him, and had said to the wife that if he did not get better soon, he would send him to a hospital for observation. While the physician was waiting, the young man took his ease into his own hands. Fortunately, accidents of this magnitude are not frequent, but the case is typical of its kind. And it is in such cases that the seven-day law can be used to advantage. In using the seven-day law it is not necessary to assert that the patient is insane; there is reason to believe that the patient is not right mentally, and in order to obtain a diagnosis and proper treatment and advice as early as possible he is sent to the hospital, where such advice and treatment may be received. The abuse of this law lies in physicians sending to the hospitals under its provisions, frankly insane cases about whose mental condition there is no doubt. Such cases should be regularly committed, as no advantage accrues to the patient through such period of observation, while the temporary care machinery of the hospital is liable to be clogged and made less efficient by any appreciable number of such cases.

Experience demonstrated that seven days was frequently not sufficient time in which to determine the patient's mental condition, and the time has therefore been increased to ten days by the present legislature.* This will be sufficient in the great majority of cases. Some cases, however, require weeks rather than days, and in such the voluntary law and the law providing

* Acts of 1915, Chap. 174.

TABLE I.—TEMPORARY CARE.²¹

	1909	1910	1911	1912	1913	1914
1. Sect. 42, Chap. 504, Acts 1909, Emergency.....	133	87	48	15	24	106
2. Sect. 43, Chap. 504, Acts 1909, Observation by Court...	5	19	47	64	83	152
3. Sect. 34, Chap. 504, Acts 1909, Apprehension alleged insane			5	7	11	18
4. Sect. 44, Chap. 504, Acts 1909, Temporary Care*.....	2	2	33	3		
5. Sect. 45, Chap. 504, Acts 1909, Voluntary.....	185	200	359	414	788	931
6. Chap. 307, Acts 1910, Temporary Care, B. S. H. Police.		129	261	344	403	436
7. Chap. 395, Acts 1911, Seven-Day Temporary Care*.....			92	416	897	1400
Total temporary care.....	325	437	845	1263	2206	3043
Total admitted without court action.....	187	331	745	1177	2088	2767
Cared for without action by court.....			387	577	1016	1512
Per cent. never requiring commitment.....			51.91	49.02	48.65	54.64

* Replaced in 1911 by No. 7, the seven-day temporary care law (Chap. 395, Acts of 1911) which has in turn been replaced by Chap. 174, Acts of 1915, increasing the time limit from seven to ten days.

court commitment for a period of observation, usually 30 to 60 days, complements the temporary care law.

A study of the temporary and voluntary care statistics in the state reveals some interesting facts.

Table I shows the number of patients admitted to the Massachusetts hospitals for temporary care since 1909. The number has grown from 325 in 1909 to 3043 in 1914. The laws designated as 1, 2, and 3 require action by courts. Admission under 4, 5, 6 and 7 is informal and without court action.

The number of patients admitted under the latter group has grown from 187 in 1909 to 2767 in 1914. Since 1909, 7295 patients have been able to receive treatment in the hospitals without formal application to the courts.

In 1914, of the 2767 patients admitted without court action, 1128 were discharged without commitment, 34 died before commitment, 235 signed voluntary requests and 115 voluntary patients continued their stay in the voluntary status, no commitment being considered necessary. Thus 1512 persons were able to secure the benefits of treatment in the hospitals for the insane without the delays, the legal exactions and the semi-publicity that comes with a procedure before a judge. This number, 1512, represents 54.64% of the patients admitted informally. In 1913 the number was 1916, or 48.65%; in 1912, 577, or 49.02%; in 1911, 487, or 51.91%. Since 1911, 3492 patients have found it possible to be admitted to the hospitals, to receive treatment and to be discharged without formal procedure.

Tables II and III show the distribution of the cases discussed under Table I.

TABLE II.—TEMPORARY-CARE CASES, 1912.*²²

	Vol.	Emergency.	Temp. Care.	Total.
Boston	93	10	545	648
Westboro ...	58	3	44	105
Danvers ...	22	0	63	85
Taunton ...	7	0	50	57
Worcester ...	12	2	42	56
Northampton.	19	0	34	53
McLean	71	0	14	85

It is to be noted that the great preponderance of cases have been admitted to the Boston State Hospital, Psychopathic Department.

In 1912 (Table II) the Psychopathic Hospital received 648 temporary care cases. The other six hospitals of the state combined (including the McLean Hospital) received but 441. There was a difference of 543 cases between the number received at the Psychopathic Hospital and the number received at the Westboro State Hospital, second highest on the list.

TABLE III.—TEMPORARY CARE CASES, 1913.*²³

	Vol.	Emergency.	Temp. Care.	Total.
Boston	448	18	628	1094
Danvers ...	25	0	80	105
Westboro ...	56	0	42	98
Taunton ...	5	0	77	82
Northampton.	22	0	50	72
Worcester ...	6	2	50	58
McLean	74	1	15	90

The same disparity is noted in the figures for 1913 (Table III). While the number of temporary care cases at the Psychopathic Hospital increased from 648 to 1094, the increase in all the other hospitals combined was but 64. The second highest number for any one hospital (Danvers State Hospital) was the same as in 1912, 105 cases. There were 260 more voluntary cases admitted to the Psychopathic Hospital

* Chap. 307, Acts of 1910 is omitted from consideration in this table as it is not applicable outside of the City of Boston.

than to all the other hospitals, and 314 more cases admitted on physicians' certificates.

As the Psychopathic Hospital is located in the most populous district of the state, is easily accessible, and is known as a hospital for the reception of early cases of mental disease, it is to be expected that it will always have the greatest number of temporary care admissions. But it is evident that these advantages cannot account entirely for the very great disproportion in numbers. The comparatively few cases admitted to the outlying hospitals on certificates of physicians for observation and advice would seem to indicate that the physicians in the districts of these hospitals either are not sufficiently familiar with these laws or are not fully aware of the benefits to be gained by their use. While the Psychopathic Hospital is a specialized hospital, organized to care for large numbers of early cases, there is no hospital in the state that is not capable of rendering an excellent service to its district in such cases, if called upon.

Several types of cases that are well cared for under these laws have been indicated. There is also another group of cases to which attention should be called, because it is an important group from the point of view of prevention.

The problem of mental disease has assumed such proportions in this Commonwealth—there were over 21,000 persons treated in our state hospitals last year; new cases are being admitted at a rate of over 3000 a year; over one-quarter of the total expense of the state goes for the care of the mentally deficient—that the only hope of coping with the situation is to attack it from the side of prevention.

In the last ten years, there have been admitted to the Massachusetts state hospitals 3096 patients under 25 years of age.

TABLE IV.—FIRST ADMISSIONS TO STATE HOSPITALS, BELOW 25 YEARS.²⁴

1904.....	273	1909.....	313
1905.....	281	1910.....	327
1906.....	241	1911.....	310
1907.....	295	1912.....	325
1908.....	257	1913.....	474
1347		1749	
Total, 3096			

The majority of these have been cases of manic-depressive insanity and dementia praecox. Of the two, the cases of dementia praecox have no doubt predominated. The real cause of this disease is not yet known. There are those, notably Kraepelin abroad and Southard²⁵ of this state, who emphasize the somatic nature of the disease. There are others.—Freud abroad, Hoch, Meyer and Jelliffe in this country, who emphasize the psychic origin. We need not enter into that discussion. Two things at least appear evident: (1) that heredity plays an important rôle; that the disease develops upon a background, as it were, of bad heredity; (2) that

undue mental strain is frequently the precipitating cause. Physical strain precipitates the disease in a certain percentage of these cases. The nervous and mental mechanism of these latter individuals is so unstable that without any undue mental strain they go to pieces "on the rocks of puberty," as it were, or at other periods of physical strain. There is little hope of accomplishing much with this class. But if a study were made of the above 3000 young adults, it would be found that a certain fairly large percentage of them had broken down in high school, others in early collegiate years, and still others on a change from a comparatively uncompetitive village or rural life to a competitive existence in a large city. "An ill-directed ambition has stimulated children of psychically poor rural stock to take up intellectual pursuits in the urban centers. Dementia praecox is not an infrequent result," says Christian,²⁷ writing of conditions in France. Observations in our own hospitals demonstrate the same facts, except that we should place the indictment not only against the "psychically poor rural stock," but psychically poor stock, either rural or urban. ". . . for the adolescent with some of the hereditary factors already outlined," writes Jelliffe,²⁸ "it is a fact, the significance of which cannot be controverted, that fatigue is a highly important element in their mental breakdown."

The problem of prevention therefore becomes a problem of avoiding undue strain in susceptible individuals. And this raises the question as to how susceptible individuals may be known. The work of Meyer and Jelliffe on pre-dementia praecox stages, or the early personality study of dementia praecox cases is suggestive in this regard, and to those who feel a responsibility in this matter, I should recommend the study of these papers.²⁹ It is possible here to go into the subject but briefly. Two types of personality, it would seem, can be distinguished among these individuals, the so-called "shut in" personality, and the precocious. Many of those who come to the hospitals from the schools and colleges have been exceedingly bright students, frequently leaders in their classes, but there has been a restless feverishness about their work, an insatiate appetite for book knowledge and the accumulation of facts. The accumulation of facts gives them a show of brilliance, but the facts they have gathered are ill-judged and poorly synthesized or not synthesized at all. Such rapacious and unstable students should arouse suspicion. The other class presents much the opposite appearance—they are moody, frequently sullen, desire to be left alone, do not mingle with their mates, are day dreamy, inclined to immature philosophizing; prefer "thinking" to "doing"; frequently show unsteadiness of occupation and inefficiency, exhibit morbid interest in their bodies, are fastidiously in regard to such things as food, bath, exercise, are irritable without cause, sullen when opposed. In other words, these children are frequently the "queer" and "peculiar"

children. Not all dementia praecox cases exhibit these early signs. Bond and Abbot,³⁰ in a study of the early personality characteristics in dementia praecox and manic-depressive patients, concluded that normal personalities are found fairly frequently in both diseases; that abnormal personalities are much more frequent in dementia praecox; that certain abnormal traits—reticence, peculiarity, precocity—are found in much larger proportions in dementia praecox than in manic-depressive; and that the "shut-in" personality and the tendency to it is found almost exclusively in dementia praecox. Their final conclusion was, however, that not more than half of the dementia praecox cases exhibited these early personality traits. Granting that only half can be thus early differentiated, much room is still left for accomplishment.

If we may hope to prevent the ultimate breakdown of these children as they approach adult life, it is important that the family physician, who knows the family so well, should understand the significance of these early signs of danger ahead, so that where a child of known bad heredity is found exhibiting these traits, advice may be sought as readily and as freely as advice would be sought in a case of suspected tuberculosis. These children, urged on by their mistaken and ambitious parents to pursuits that are beyond them, go to pieces; while, so far as we know, many of these children directed into channels of less strain and competition might live out their entire lives without insanity. Is it not reasonable to hope, therefore, for the time when physicians will be as keen and careful and skilled in detecting the early signs of mental disease as they are now in detecting the early signs of tuberculosis, and when by a closer co-operation between the family, the physician and the hospital, these cases can be studied and the family be given proper advice as to the future safe training of the child? This co-operation is made possible by the present voluntary and temporary care laws.

In conclusion it may be said that the present voluntary and temporary care laws are valuable because:—

1. They tend to express in legal form the modern conceptions of mental disease; and without endangering the personal liberty of any individual.

2. They at the same time emphasize the patient's cause as a patient:

3. They make it possible to provide early treatment, which is the most hopeful treatment;

4. They afford protection to the patient both from himself and from unprincipled members of the community quick to take advantage of his illness;

5. They afford protection to the family and community against the acts of the patient;

6. They obviate in a large number of cases the delays, legal exactions, semi-publicity, and stigma of having been declared insane;

7. They remove the hospitals from the isolation they have suffered in the community and make it possible for them to take their place as hospitals in fact as well as in name, a more integral part of the social fabric;

8. They make possible a wider co-operation between the hospitals and the lay and medical public, which will yield to the Commonwealth which supports them a greater usefulness;

9. And finally, by means of a wider understanding of the more fundamental facts in regard to mental disease on the part of physicians, co-operating with the hospitals, through the more frequent use of these laws it may be possible to prevent certain forms of mental disease.

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REPORT OF HARVARD UNIVERSITY SERVICE AT THE AMERICAN AMBULANCE, LYCÉE PASTEUR, NEUILLY-SUR-SEINE, FRANCE.

APRIL 1 TO JULY 1, 1915.*

BY ROBERT B. GREENOUGH, M.D., BOSTON.

At the request of the Medical Board of the American Ambulance at Neuilly-sur-Seine, a surgical contingent was organized by the Harvard Medical School, and sent to France to take charge of the so-called University Service of that hospital from April 1st to July 1st, 1915.

The funds needed for the equipment and transportation of this contingent, commonly known as the "Harvard Unit," were generously provided by Mr. William Lindsey of Boston, and the group of seventeen surgeons and nurses arrived in Paris on the morning of April 1st, 1915, and proceeded at once to take charge of the service which had been from January 1st to April 1st, under the care of Dr. G. W. Crile of Cleveland, and the members of the Western Reserve "Unit."

The American Ambulance was established as a military hospital for wounded soldiers, by the staff of the American Hospital of Paris, in September, 1914, and has been generously supported by Americans in Paris and at home. It is directly under the control of the Service de Santé of the French War Department, and is independent of the French, English or American Red Cross Societies.

The Lycée Pasteur, a high school building, still under construction, but nearly completed, in Neuilly, a suburb of Paris, was secured by the War Office and converted into a most excellent war hospital. Mr. Carroll Greenough, as representative of the firm of architects who built the Lycée, was in charge of these and subsequent alterations and improvements.

The Ambulance (the French word for a military hospital) was gradually enlarged until in June, 1915, it contained beds for over 750 patients. Of this number the University Service (Service D) had 190 beds, the rest being divided between three other services as follows: Service A, Dr. C. W. DuBouchet, Surgeon-in-chief; Service B, Dr. Joseph A. Blake; Service C, Dr. Mignon. In addition to these general surgical services special departments were also in operation, as follows: Dental Department, Drs. Hays and Davenport; Throat and Nose Department, Dr. Koenig; Eye Department, Dr. Scarlett; Genito-Urinary Department, Dr. Heitz-Boyer; X-ray Department, Dr. Jougeas; Pathological Department, Dr. Kenneth Taylor.

All of the administrative departments of a modern hospital have been established, such as kitchen, laundry, supply room, apothecary, diet

kitchen, and departments for statistics and surgical dressings and apparatus. There is a competent corps of trained nurses under the Superintendent, Miss Willingale. Many of the nurses have had their training in American or English hospitals, and there is a sufficient force to supply one nurse to every ten patients by day, and one for every forty patients by night. In addition to the trained nurses, and acting as assistants to them, there has been organized a corps of volunteer or auxiliary nurses and orderlies. These volunteers have given most devoted and competent service, and have contributed greatly to the comfort and well-being of the wounded. It is fair to say that without this efficient group of volunteers a much greater number of trained nurses would have been required, and the cost of maintenance of the hospital would have been that much increased.

The University Service was composed of eighteen wards, containing ten or eleven beds, on the third floor of the building. A special operating room and laboratory was arranged for this service on the fourth floor of the north wing, giving excellent light and ample and satisfactory equipment. No surgeon could reasonably ask for more favorable conditions under which to work.

The members of the Harvard University Service which took charge on April 1st, were as follows: Dr. Harvey Cushing, surgeon; Dr. Robert B. Greenough, surgeon and executive officer; Dr. Richard P. Strong, bacteriologist; Dr. Robert B. Osgood, orthopedic surgeon; Dr. Beth Vincent, assistant surgeon; Dr. William M. Boothby, anesthetist; Drs. Fred A. Collier and Elliot C. Cutler, resident surgeons. Drs. Philip D. Wilson, M. N. Smith-Petersen and Lyman G. Barton, Jr., house-officers; Dr. Orville F. Rogers, Jr., medical assistant; Dr. George Benet, laboratory assistant; Misses Edith I. Cox, Geraldine K. Martin, Helen A. Parks and Marion Wilson, operating-room nurses.

About April 10th, Dr. Strong was obliged to leave Paris for Sérvia, to take the position of director of the American Red Cross Sanitary Commission, and Drs. Rogers and Benet took over the laboratory work. On May 1st, Dr. Cushing and Dr. Boothby left for home, and on May 28th, Miss Wilson left for England. During a part of the month of April, Dr. Vincent was detached for service at a Red Cross hospital at Chateau-Annel, near Compiègne, to fill an urgent need. During the latter part of June, Dr. Wilson was transferred, temporarily, to Dr. Mignon's service to fill a vacancy in the house staff. With these exceptions the service continued as it started until July 1st.

The functions commonly exercised by the trustees of a hospital were fulfilled by the "ambulance committee" composed of the group of Americans resident in Paris, to whom the American Ambulance owes its existence. Laurence V. Benet, Robert Bacon, L. V. Twyeffort,

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Charles Carroll, Dr. Edmund L. Gros, Dr. Joseph L. Blake, Dr. C. W. DuBouchet, and Capt. Frank H. Mason were among the most active workers on this board. Under this committee were administered also the affairs of the two independent but allied institutions: "Hospital B," a war hospital of 200 beds, established at Juilly, under the financial support of Mrs. H. P. Whitney, and the "Ambulance Corps," an organization of 78 motor ambulances with volunteer drivers, which were assigned in squads of ten to twenty ambulances to work at different portions of the line, as ordered by the War Department, and which used the Lycée Pasteur as a base for equipment and supply. In June, 1915, a further extension of the hospital was also under way in the establishment of a convalescent home at St. Cloud, and the organization of a continuous orthopedic service.

The amount and quality of material for surgical dressings and supplies provided by the Ambulance was adequate for all surgical necessities. The Harvard Unit brought and supplied for its own use such special instruments and materials as would not readily be found in Paris—notably instruments and materials for Dr. Cushing's work, a "Connell" ether anesthesia apparatus, a supply of nitrous oxide and oxygen for anesthesia, orthopedic appliances, and a "Maddox" extension table for the application of plaster dressings to fractures. An estimate was made of the amount of gauze-sponges, pads, dressings and bandages necessary for the three months service, and the cost of the raw materials was contributed by the committee of the American Ambulance in New York. These materials were made up and sterilized by the surgical dressings committee of the Civic Federation of Boston, under Mrs. F. S. Mead, and packed and shipped to Paris in March and April. The first of these supplies reached Paris about April 10th, and from that time all the needs of the University Service were admirably supplied by these dressings. They arrived in excellent condition and in use they proved to have been efficiently sterilized.

A system of triplicate records with a card catalogue index was put in operation on the University Service on April 10th, as soon as the necessary blank forms could be obtained and stenographers employed. One copy of the record remained to be filed in Neuilly. Two copies with duplicate x-rays, charts and photographs have been brought to Boston and deposited in the library of the Harvard Medical School. To assist in the preparation of these records two stenographers and one photographer were employed. Records and notes were dictated daily, and manifold copies were typewritten and filed in envelope folders in the wards, as well as in the record room. For each case discharged from the hospital a special blank form, provided by the French War Department, had to be filled out, giving in brief the nature of the wound, its

treatment and complications, and the condition of the patient at discharge.

The supply of wounded to the American Ambulance was probably as constant as that to any of the French military hospitals, but, of course, varied with the activity of operations at the front. Being a base hospital it drew from a wide section of the front, and during our service cases came to us from as far north as the Franco-Belgian line beyond Ypres, and as far east as Verdun. Under ordinary circumstances a soldier wounded in the trenches has a first-aid dressing with iodine applied at his regimental dressing station. He is then carried or walks back to the "poste de secours," at the point nearest to the front to which ambulances can go. This "poste de secours" is situated either in a bomb-proof dug-out, or in a farm house or other building, and is often under artillery fire. No elaborate surgical interference can be undertaken under these conditions, but emergency dressings and splints are applied, and a tag is filled out giving the name and corps of the soldier, a provisional diagnosis, and a statement of whether he has had, or is to receive, a prophylactic dose of anti-tetanic serum.

The patient is then moved in a cart, or, if possible, in an ambulance back to the "ambulance de première ligne," just out of artillery range. Here a surgeon investigates the wound, gives a dose of anti-tetanic serum if necessary, and operates on such cases as require imperative interference, as for hemorrhage or abdominal injuries. The equipment is necessarily inadequate, and the majority of cases pass rapidly through the first line hospital to the evacuation hospital on the railway line. Here they are again inspected, urgent operations are performed, and the cases placed as soon as possible on the "sanitary train" and sent to Paris, or to some other centre of distribution. The sanitary trains are admirably fitted out with stretchers for the "grandes blessés" and seats for the "petits blessés" or ambulatory cases. A corps of surgeons and orderlies is assigned to each train, and the cars are used for no other purposes. By each of these trains 250 to 300 wounded can be transported rapidly to the base. In Paris the trains arrive at La Chappelle, the freight station of the Gare du Nord. Here a long freight shed has been converted to hospital purposes, the track is curtained off, and portable houses have been erected on the platform for the medical officers, and the different classes of wounded. The shed is warmed with open braziers, and bright and cheerful with potted plants. A squad of Red Cross nurses is at hand to supply food and drink, and to assist in the adjustment of dressings, and in the distribution of the wounded. Outside, behind a barrier, the ambulances from the different Paris hospitals are drawn up, often as many as one hundred, to meet one train, and the ambulance drivers wait in a separate enclosure to get their assignment of wounded.

As fast as the wounded are brought off the train they are assigned to the different hospitals according to the day's list of vacant beds. Some room for selection is possible on account of the nature of the hospitals. German prisoners are sent to the regular military hospitals, such as Val-de-Grâce, where they can be under guard. Insane patients are also sent to a special hospital. Medical cases are sent to one institution, and grave surgical cases to others. In this distribution the American Ambulance receives due recognition, and its wards are kept practically full with the graver surgical cases. During Dr. Cushing's stay, a special effort was made to send cerebral cases to the Ambulance.

The sanitary trains arrived in Paris at all hours of the day or night, as the exigencies of traffic to and from the front permitted. The motor ambulances would then bring the wounded to the hospital. The receiving clerk and the surgeon of the day would examine the patients and assign them to the wards. Each of the four services receives all of the cases coming to the Ambulance every fourth day in rotation, but when the hospital was nearly full, cases might be sent to any service where there were vacant beds. The largest number of admissions to the University Service in any one twenty-four hour period was thirty-three. In the three months' service 295 new cases were allotted to us,—an average of over three cases a day. On April 1 the University Service had 146 patients. During April 138 new cases were admitted and 131 discharged. During May 103 cases were admitted and 95 discharged. During June, 54 cases were admitted and 41 discharged. A total of 295 admissions and 267 cases discharged.

Of the total number of 441 cases which at one time or another came under the charge of the Harvard University Service we have 383 records. No records were obtained of 58 cases which were transferred to us by the Western Reserve Unit, but were discharged from the hospital before stenographers had been secured and a permanent system of records established. Forty-seven of this number had been officially discharged from the hospital on April 1, but had not then actually left the building.

Mortality: Of the 441 cases entered on the Harvard University Service, in the three months from April 1 to July 1, 1915, seven died, or 1.6%. The causes of death in these cases were as follows:—

CASE 1224. Bullet wound of spinal cord and chest. Paralysis, bed-sores, exhaustion.

CASE 1946. Bullet wound of intestine. General peritonitis and hemorrhage. Died fifteen minutes after entrance to hospital.

CASE 1671. Shell wound of chest and laceration of lung. Hem-o-pneumothorax.

CASE 2146. Compound fracture and gangrene of arm. Gas-bacillus infection. Immediate amputation. Gas-bacillus septicemia.

CASE 1726. Compound fracture of skull; laceration of brain. Meningitis.

CASE 1737. Compound skull fracture by rifle ball; laceration of brain. Erysipelas; meningitis.

CASE 2139. Compound fracture of jaw and cervical vertebrae by shell fragment. Meningitis.

The 383 cases included in the records of the Harvard University Service were divided as follows:

Single wounds.....	217
Two or more wounds.....	101
Amputation wounds.....	4
Sepsis.....	3
Diseases of ears.....	5
Diseases of teeth.....	12
Diseases of eye.....	1
Doubtful diagnosis.....	1
Miscellaneous diseases and injuries without wounds.....	39
Total.....	383

Three hundred and seventeen of the 383 cases received actual wounds by missiles. They were divided as follows:

Rifle ball.....	128
Shrapnel ball.....	31
Shell fragment.....	133
Shell fragment and rifle ball.....	5
Shell fragment and shrapnel.....	1
Doubtful.....	5
Bomb fragments.....	9
Hand-grenade wounds.....	3
Mine explosion.....	1
Revolver ball.....	1
Total.....	317

Of the 66 cases in which no wound produced by a missile existed, the nature of the injury or disease was as follows:—

Falls	15
Barbed wire wound.....	1
Bomb, shell and mine explosions.....	10
Crushes.....	3
Miscellaneous diseases and injuries.....	37

Total 66

Considerable interest attaches to the question of whether a missile perforates the body and makes a wound of exit, as well as one of entrance, or whether the missile lodges in the tissues. It would be expected that the rifle ball would perforate more frequently, and that shell fragments and shrapnel balls, having a lower velocity, would show more tendency to lodge in the tissues.

Of 154 wounds by bullets 128 were perforating wounds and in 26 the bullet lodged—16.8%.

Of 32 wounds produced by shrapnel balls 17 were perforating and in 15 the missile lodged—46.8%.

Of 161 wounds produced by shell fragments 89 were perforating and in 72 the fragments lodged—44.7%.

Many of the 383 cases included in the records

of the Harvard University Service presented more than one wound, and in many more several different anatomical structures were affected. These different lesions were classified and studied separately, giving data on some 670 instances of special medical or surgical conditions. A brief analysis of these groups of cases is appended.

Group 1. *Injuries and Diseases of the Skull*—20 cases. These were all compound fractures of the skull, in 15 of which cerebral symptoms developed, and in 5 there were no cerebral symptoms. Two cases were not operated upon; 9 were operated upon in other hospitals, and 9 in the American Ambulance. In 10 cases of skull injury the missile lodged, and in 4 cases the missile was removed by operation—in 2 cases by the use of the electro-magnet. Two cases (No. 1726 and No. 1736) died; the rest recovered.

Group 2. *Injuries of the Spinal Cord*—7 cases. In 6 cases there was injury by missile to the vertebral column. One case was merely concussion. There were 4 operations performed, and in 2 cases a hematomyelia improved without operation. There were 2 deaths—No. 1224 of toxemia and No. 2139 of meningitis.

Group 3. *Injuries of the Head and Face*—14 cases. Superficial wounds of the face, 8; scalp wounds, 4; 1 case of wound of the orbit and antrum, and 1 case of fracture of the teeth. There were no fatalities among these cases.

Group 4. *Fractures of the Upper and Lower Jaw*—63 cases. Injuries of this region appear to be extremely common under present conditions of trench warfare. Practically all of these cases were treated in the Dental Department, and seen by the surgical staff only in consultation. The work of the dentists in these cases is one of the remarkable features of the medical work of the Ambulance. Interdental splints, crown and bridge work, wiring of teeth, with and without metal splints, massage, and the use of inclined planes are some of the methods used to bring about reduction of misplaced teeth and alignment of the jaws. Six of these cases were returned to the University Service for operation for the repair of defects of the lips and mouth. One case had a bone graft (rib) placed to fill a defect in fracture of the lower jaw.

Group 5. *Fractures*. Compound fractures with more or less sepsis were perhaps the most important and difficult cases of the Service. There were 121 compound fractures and 19 closed fractures. Omitting 5 cases of compound fracture of the phalanges, there were 13 cases in which amputation of an extremity was necessary. Five were amputated in other hospitals before entrance to the Ambulance; 2 were amputated on the University Service before the Harvard Unit came on duty. The 6 amputations performed on the Harvard Service were as follows: For secondary hemorrhage, 2 cases; for gas-bacillus infection, 1 ease; for sepsis of the knee and ankle joint, 3 cases. One of these cases—a gas-bacillus infection—died of septi-

hemia, although the amputation was performed immediately on entrance. There were no other fatal cases.

Most of these compound fractures were septic at entrance, and the general policy of treatment adopted involved the investigation, under anesthetic, of every compound fracture, with removal of foreign bodies, such as shell fragments and clothing, and of detached bone fragments. There were only three cases of compound fracture in which aseptic healing of the wounds of entrance and exit occurred. These were: (1) fracture of the neck of the femur; (2) fracture of the fibula; (3) a fracture of a phalanx.

Of the 19 closed fractures, 2 cases of fracture of the femur, and 3 of fracture of the tibia were operated upon for mal-union and fixation with bone-plates or Parham bands attempted. All of these cases healed by first intention. In one ease a plate loosened and there was a partial recurrence of deformity. In the other 4 cases the results were entirely satisfactory.

With the exception of the 6 cases which came to amputation the compound fracture cases made satisfactory progress, and a number were able to do without apparatus on July 1st. Many of the cases, however, were still under treatment with apparatus on that date.

In 42 of the fracture cases neighboring joints were involved—40 compound and 2 closed fractures. In 6 of these cases excision of the joint was performed—4 of the shoulder, and 2 of the hip.

Group 6. *Injuries of the Chest*—21 cases. In 2 cases only the ribs and soft parts of the chest wall were injured and the pleural cavity was not involved. In 9 the missile passed through the chest cavity, with wounds of entrance and exit, and in 10 the missile lodged. Eleven of the 19 pleural cases developed empyema, and 10 recovered. One ease that died (No. 1224) was a spinal paralysis ease with death due to bed-sores and exhaustion. One case died of hemorrhage into the pleura from a lacerated lung. Five of the 11 empyema cases were operated upon by rib resection; others had sufficient drainage provided by the original wound, or had healed to a small sinus, when they entered the hospital, and did not require further drainage. In 2 cases the posterior mediastinum was involved.

Group 7. *Injuries and Diseases of the Abdomen*—13 cases. There were 7 penetrating wounds of the abdomen. One case (No. 1946) died fifteen minutes after entrance to the hospital, of general peritonitis. Two developed fecal fistula, one of which was closed by operation and healed by first intention. Three cases of abscess in the lower abdomen resulted, which were drained. Three cases of sub-acute appendicitis were operated upon, and all healed by first intention. One femoral and one inguinal hernia were also operated upon successfully. There was one ease of abdominal contusion which recovered without operation.

Group 8. Injuries of the Pelvis—4 cases. One was a simple fracture; the other 3 were perforating wounds, one of which involved the rectum. All of these wounds were drained.

Group 9. Peripheral Nerve Lesions—39 cases. Twenty-two of these had accompanying bone lesions. Of the peripheral nerves the musculo-spiral was the most commonly injured. There were 10 cases. The median nerve and the external popliteal nerve were each affected in 5 cases. Twelve operations were performed for peripheral nerve lesions—7 sutures, and 5 exploratory operations for freeing the nerve from scar contraction. All of the wounds healed by first intention, but sufficient time had not elapsed to determine the extent of return of function. Five cases showed improvement of function before July 1.

In addition to operative treatment, massage, electricity and supporting apparatuses were used. Supporting or "cock-up" splints were devised by Dr. Osgood for 7 cases of wrist-drop, and special wire splints for 3 cases of toe-drop.

Group 10. Joint Lesions without Fracture—13 cases. There were 7 penetrating wounds of joints: 4 of these were of the knee joint; 2 were old cases with continued drainage and ankylosis; 2 were fresh cases in which temporary drainage to the synovial membrane was employed, and these healed without loss of motion. There were 2 cases of lesion of the hip joint in which missiles lodged in the vicinity of the joint and subsequent sepsis invaded the joint. There was one case of temporary drainage of the elbow joint, without loss of motion. There were 6 cases of sprains or synovitis without external wounds, all of which subsided with strappings or plaster, and later massage.

Group 11. Lesions of Soft Parts—Skin, Muscle, Tendon. In some cases several missiles (as shell fragments) produced multiple wounds in the same individual. In others one missile produced multiple wounds in the same individual. In one instance eight wounds were produced in one individual by a single rifle ball, viz: right thigh (entrance and exit), penis (entrance and exit), scrotum (entrance and exit), and left thigh (entrance and exit). We have records of 378 wounds in our 383 cases, elusive of 30 cases of multiple injury in which there were more than five wounds, and an accurate enumeration of them was difficult or impossible. One hundred and twenty-one of the 378 wounds were associated with bone lesions. The remaining 257 were wounds of the skin and soft parts alone. In general all of these wounds were septic.

Cultures: An effort was made to obtain cultures of all fresh open wounds, and cultures were obtained in all cases in which there was the possibility of grave infection. We have records of 132 cultures taken on a hundred different cases. Twenty-eight of these cultures showed anaerobic gas-producing organisms, not to be distinguished from the *Bacillus Aerogenes Cap-i*

sulatus of Welch. Other anaerobes were occasionally present, and there were many cultures showing the ordinary pus-producing organisms. A report upon the bacteriological findings of the Service will be made in full by Drs. Rogers and Benet, who were in charge of the laboratory.

The treatment adopted for wounds of the soft parts was in general similar to the treatment of compound fractures. Under an anesthetic a thorough cleansing of the wound was obtained with benzine and iodine on the skin, and sodium hypochlorite for irrigation. Sloughing and damaged tissues were removed, and in the majority of cases drains were inserted. In 3 cases primary suture of an infected wound was attempted, after cleaning, and in 2 of these cases healing by first intention resulted. In 5 cases secondary suture was performed after the case had been in the wards for some days, and in 5 of the 6 the sutures held and the wound healed practically by first intention.

Muscles and tendons were involved in wounds of the soft parts in 55 cases, 43 of which were operated upon for cleansing and drainage. In 17 cases plaster or splints were used for fixation of these wounds, and in 8 cases contractions of muscle occurred, as a result of healing of these wounds,—3 of the ham-string muscles, 3 of the calf muscles, 1 of the biceps of the arm, and 1 of the extensors of the forearm. In 2 cases manipulation under an anesthetic was required, and in 1 an open operation for lengthening the tendon Achillis.

Of the 257 wounds of the skin and soft parts without bone involvement 10 healed aseptically and without interference, and 2 after operative cleansing and suture. The other wounds were all treated with drainage and did not heal "per primam."

Group 13. Miscellaneous Lesions—49 cases. A number of injuries and diseases presented themselves which do not fit in the groups which have been above described. Some of these conditions occurred only as intercurrent or complicating diseases. The list is as follows:

Diseases of the teeth and gums.....	12
Diseases of the ear.....	8
1 ruptured drum	
7 otitis media (2 of these required mastoid operations)	
Injuries and diseases of the eye.....	7
Septic processes not due to wounds.....	3
Frost-bite	2
Cardiac lesions	2
Bronchiectasis	2
Syphilis	2
Mesenteric tuberculosis	1
Chronic ulcer of leg	1
Sprain of back	1
Burn of neck	1
Typhoid fever	1
Broncho-pneumonia	1
Pneumonia and malaria.....	1
Bronchitis	1
Influenza	1
Foot deformity	1
Doubtful diagnosis	1
Total	49

There were no deaths in this group of cases.

Group 14. *Medical Work.* The medical work of the Service was conducted by Dr. Orville F. Rogers, Jr. It consisted in large part of chest examinations in cases of wounds of the thorax, in the study of a number of cases of obscure diagnosis, and in the regulation of the diet in cases of general debility, and in cases of jaw injury which interfered with proper mastication. In all, forty-four different morbid conditions were referred to the medical assistant for examination and treatment.

Group 15. *Operations.* There were 210 different cases operated upon in the University Service, and 271 operations were performed. The list is as follows:—

Exploration for compound fractures.....	37
Exploration for foreign bodies.....	22
Incision, cleaning and drainage of septic wounds	127
Craniotomy	10
Mastoid operation.....	1
Drainage of antrum.....	2
Operations on peripheral nerves.....	4
Laminectomy	1
Operations on the chest:	
Aspiration	1
Rib resection	3
Operations on the abdomen:	4
Appendectomy	3
Uterna	2
Closure of fistula	1
Amputations:	6
Finger	2
Arm	2
Leg	2
Thigh	2
Re-amputation with disarticulation (shoulder joint)	1
Plastic operations on face and jaw.....	14
Plastic operation on tendon.....	1
Plastic operation on bone cavity.....	1
Skin graft	1
Secondary suture	1
Fixation of closed fracture with bone plates.....	8
Removal of bone plates.....	1
Excision of chronic ulcer.....	1
Manipulation and plaster.....	7
Resection of finger joint.....	1
Resection of shoulder joint.....	3
Resection of hip.....	2
Transfnsion	2
Total	271

In no case of operation in a clean field was there failure to obtain first intention healing.

On Thursday, July 1, 1915, the cases of the Harvard University Service were transferred to the University of Pennsylvania Service, under Dr. J. P. Hutchinson, and the members of the Harvard Unit left Paris that night and sailed on Saturday, July 3rd, from Bordeaux, arriving in Boston Tuesday, July 13.

A number of shell fragments, cartridges, bullets and other missiles were brought back, together with a large number of photographs and the records of the University Service. These have been delivered to the Warren Museum, and will be properly mounted and labeled for teach-

ing purposes. Lantern slides have been made of the more important photographs.

A more extended report upon the surgical aspects of the work is in preparation and will be published in the fall.

Original Articles.

ARTIFICIAL PNEUMOTHORAX.*

BY EDWARD O. OTIS, M.D., BOSTON.

HARDLY any new procedure in medicine or surgery has come into such prominence within the last few years as artificial pneumothorax. The literature upon the subject is now quite enormous—whole issues of medical periodicals have been devoted to it. It was one of the main topics for discussion in the last International Tuberculosis Congress at Rome. An International Artificial Pneumothorax Association has been formed which disseminates literature upon the subject. There is hardly a sanatorium or consumptive hospital in which the operation is not done. Experience and knowledge upon the subject have, therefore, accumulated rapidly, and we are in a position to form a fair estimate of its value from results.

After Forlanini, the pioneer and ardent advocate of this treatment, we are perhaps more indebted to Brauer of Hamburg than to any other single investigator of this form of treatment, for bringing the subject definitely before the medical public which is occupied in the management of pulmonary tuberculosis. There is a wealth of clinical experience in the marvellously minute and painstaking histories of the one hundred cases which he published in 1911, cases extending over a period of five years. We hear much of German efficiency and attention to details in these days. Surely, Brauer's work is an admirable illustration of this Teutonic characteristic, and no one who desires to become familiar with the subject can afford to neglect his work, although his method of operation has now fallen into disuse.

From the extensive evidence at hand from all over the world, no one can now deny the value of artificial pneumothorax in pulmonary tuberculosis when other means fail. In some cases it brings about an arrest of the disease not otherwise attainable; in other cases, a relief from one or more of the distressing symptoms. Its applicability is limited, in my opinion, and it is often unsuccessful. As Balboni well says, "it is an unusual therapeutic measure, the creation of a pathological condition in order to cure or relieve another pathological condition," and is "only to be undertaken after careful consideration of each individual case."

* Presented in discussion at the meeting of the National Association for the Study and Prevention of Tuberculosis, Seattle, Wash., June 15, 1915.

In general, there is a unanimity of opinion among those of the most experience as to the indications for applying this treatment: extensive unilateral (or chiefly so) progressive or chronic lesions which fail to respond to the ordinary hygienic-dietetic treatment, or to tuberculin. Second: recurring more or less severe hemoptysis which fails to yield to ordinary treatment, or very severe hemorrhage not otherwise controlled, provided, of course, one can be sure from which lung the hemorrhage comes.

All of Brauer's cases, as he says, were those in which the conditions and progress of the disease gave an absolutely unfavorable prognosis. "If you are to judge of the results of the treatment with artificial pneumothorax," says Saugman, "it must at once be understood that this treatment deals with very severely attacked, third stage patients of whom a great part, indeed, most of them, without this treatment would have practically no chance of recovery or healing."

There seems to be some diversity of opinion and practice, however, in regard to the two extremes, the earlier cases and the last stage ones. Pneumothorax therapy is by some recommended for early or incipient cases which appear to have no recuperative power or show no improvement under the ordinary treatment; also in early cases which have no opportunity for the usual open-air treatment; or again, when the "progress toward improvement is particularly slow." At the other extreme, this treatment is employed by many in otherwise hopeless or doomed cases as a last desperate resort whenever compression can be consummated, and occasionally an arrest is obtained.

There seems to be no doubt that the unilateral cases with but little or no infiltration in the other lung, and that inactive, and where there is still a fair amount of resistance, offer the most favorable conditions for this treatment and give the best results. The percentage of such cases which are either arrested or greatly improved is placed as high as forty or fifty per cent. (Floyd).

To assume that if the operation does no good it will do no harm is, I believe, false; for there is always the possibility of pleural shock, gas embolism, subcutaneous emphysema, infection of the pleural cavity, disturbance of the blood supply from displacement of the heart, and a lighting up of the inactive process in the other lung. It is an operation that should only be entered upon advisedly, discreetly and in the fear of these possible dangers. One must also bear in mind that although he may consider the operation a very simple one, to the patient it means an *operation*, with all the dread that the word suggests, and he will not infrequently elect to take his chance without it when it is advised rather than undergo the mental anguish which the fear of an operation produces. This fact again reduces the number of cases to which we can apply the pneumothorax treatment.

A word with regard to the x-ray. The consensus of opinion is, I think, that one is not justified in carrying on the treatment without constant access to the x-ray with a skilled technician. Before beginning the inflation a careful study of the x-ray picture of the lungs should be made and subsequently, both before and after each inflation; only in this way, by ocular evidence, can we be sure that the case is a favorable one for the treatment, and determine its success. Moreover, we can thus avoid many of the dangers incident to it.

As to the apparatus employed, there are almost as many kinds or modifications of one or another kind, as there are operators. The main requisite is to use an instrument with which one is familiar, and which is as simple as the conditions will allow. Whatever the apparatus used, it should have a good manometer which can be easily read, and an arrangement whereby the flow of gas can be readily regulated as to pressure, and be steady. One of the most satisfactory forms of apparatus which has come under my observation is that of Prof. Deneke of St. George's Hospital, Hamburg. In brief, it is made double. Upon one side of an upright standard is a complete arrangement for the injection of nitrogen gas, and on the other side is a replica of the same for the injection of oxygen gas, Prof. Deneke's idea being that greater safety is insured if on the first injection oxygen is used, so that if by any chance the needle may have entered a vessel, the oxygen gas on account of its rapid absorvability will be much less likely to produce gas embolism. By simply turning a stop-cock, nitrogen gas can be substituted for the oxygen gas.

There have also been as many kinds of needles as apparatuses, each operator having his favorite one. Deneke's needle seems to me to have certain advantages, its peculiar characteristics being its extreme simplicity, consisting of a cannula and stylet, the cannula having a less acute angle at its perforating end than the ordinary needle, and is closed at this extremity, the opening being in the side just above the point.

There are many other problems in connection with artificial pneumothorax which could with great interest be discussed if time permitted; such, for example, as the amount of positive pressure permissible in case of adherent pleura, the amount of gas introduced at any one time and the frequency of introduction, the length of time the treatment should be continued, the effect upon the neighboring organs, the contraindications, and the employment of the treatment in recurring pleuritic effusions, bronchiectasis, and abscess.

The scope of artificial pneumothorax is apparently not yet fully determined, but that it has won a permanent place in the treatment of tuberculosis is assured. In the very conservative words of Saugman, "it has fully justified its place in the treatment of some severe cases of

pulmonary tuberculosis and that, by it, recovery sometimes may be obtained when any other treatment would have failed." It is well to bear ever in mind, however, that it does not by any means take the place of the well known measures for increasing and maintaining the resistance, such as fresh air, rest and good and sufficient food, but, like tuberculin, it is an additional aid in certain cases and may save the day.

ON THE STATE OF THE RESPIRATORY MECHANISM IN PNEUMONIA.

BY J. H. MEANS,¹ L. H. NEWBURGH,² AND
W. T. PORTER.³

[From the Laboratory of Comparative Physiology in the Harvard Medical School.]*

I.

It is known that when an animal breathes through a closed system of tubes, the amount of the carbon dioxide in the inspired air progressively increases. In normal animals the volume of the tidal air, *i.e.*, the volume of the air passing in and out of the chest, increases with the increase in carbon dioxide until the reaction ceases. In our observations, the reaction of normal animals continued usually until the volume of the tidal air was four or five times greater than when the animal breathed only atmospheric air; in our highest observation, the increase was seven-fold, at which point the animal was still reacting. The increase of carbon dioxide in the inspired air is, therefore, a stimulus to the respiratory mechanism, and the state of that mechanism may be measured by determining the ratio of the tidal air (cubic centimetres per minute) to the percentage of carbon dioxide inspired.

It is the object of this investigation to compare this ratio in normal animals with the ratio in animals with pneumonia. The state of the respiratory mechanism in pneumonia will thus be revealed.

II.

The present experiments were performed upon cats.⁴ The percentage increase in the tidal air due to the progressive increase in the carbon dioxide breathed was found to be as follows: (Table I.)

TABLE I.—THE AVERAGE REACTION TO CARBON DIOXIDE IN NORMAL AND PNEUMONIA CATS.

Carbon Dioxide in the Inspired Air.	Increase in Volume of Tidal Air in Normal Cats.	Increase in Volume of Tidal Air in Pneumonia Cats.
Per Cent.	Per Cent.	Per Cent.
1	21	6
2	51	14
3	102	36
4	173	68
5	276	53

It is clear from Table I that the reaction of the respiratory mechanism to carbon dioxide is greatly diminished in pneumonia.

The greatly impaired reaction of the respiratory mechanism in pneumonia is admirably shown also by a comparison of the normal reaction with (*a*) that of animals moderately ill with pneumonia, and (*b*) that of animals near death with this disease. When the carbon dioxide in the inspired air rose to three per cent., the volume of the tidal air increased:

In normal animals.....	98%
In animals moderately ill with pneumonia.....	43%
In animals near death with pneumonia.....	7%

Since the volume of the tidal air in animals with pneumonia is often greater than the tidal air in normal animals, it might be supposed that pneumonia animals do not increase their respiration when stimulated by carbon dioxide because they are already breathing as much as they can. That this is not a source of error is demonstrated by comparing the carbon dioxide reaction of animals whose tidal air at the beginning of the observation has in every case approximately the same volume. Following is such a comparison:

When the carbon dioxide in the inspired air was two per cent.:

4 normal cats breathed.....	1223 c.c. per minute
4 pneumonia cats breathed.....	1233 c.c. per minute

Thus the tidal air in both groups was practically equal in volume.

When the carbon dioxide in the inspired air rose to four per cent., the same

4 normal cats breathed.....	2330 c.c. per minute
but the	

4 pneumonia cats breathed.....	1758 c.c. per minute
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Thus at two per cent. the pneumonia cats and the normal cats breathed alike, while at four per cent., the pneumonia cats had increased less than half as much as the normal cats.

III.

CONCLUSION.

1. The reaction of the respiratory mechanism to carbon dioxide is greatly diminished in pneumonia.

2. The graver the disease the less the reaction.

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⁴ The state of the respiratory mechanism in dogs with pneumonia is now being studied. The results will be published with the full report of the present experiments.

* Aided in part by a grant from the Proctor Gift.

NOTE CONCERNING EXERCISE IN THE TREATMENT OF SEVERE DIABETES.

BY FREDERICK M. ALLEN, M.D., NEW YORK.

[From the Hospital of the Rockefeller Institute for Medical Research, New York.]

AUTHORITIES on diabetes have agreed that muscular exercise is a useful means of increasing tolerance in cases of mild or moderate diabetes, but is inadvisable in the most severe cases, where it may increase glycosuria, exhaust strength, and even send the patient into coma. It has been a stringent rule that severe diabetes should be guarded against all excessive exertion and fatigue.

Since the changes in diabetic treatment now transform severe into mild cases as far as freedom from glycosuria and acidosis is concerned, it was considered worth while to investigate whether such patients might also react to exercise in the same way as mild cases. Tests were made first on diabetic dogs, with a known constant limit of tolerance for carbohydrate or protein. It was found that vigorous exercise on the treadmill markedly raised the tolerance of such animals, as judged by the sugar in both urine and blood. In some experiments, dogs which for months past had regularly shown glycosuria whenever they were given 100 grams of bread, on exercise became able to take 200 grams of bread as a regular daily ration without glycosuria.

The tests with patients are more recent, but the results thus far appear sufficiently favorable to warrant recommending exercise as an addition to the treatment. Just how early the exercise is begun may vary with individual patients. It seems possible that the stronger patients may shorten their initial fast by this means if desired. As soon as the first few days of treatment have markedly reduced glycosuria and ketonuria, the dangers previously feared from over-exertion are apparently removed. Naturally, some of the severest cases are too weak for exercise at first, but it is begun as early in the period of dieting as practicable, and generally the weak patient is able to do more than he or his physician supposed. In suitable cases the blood-sugar may be found to fall rapidly during a half-hour or hour of lively exercise. In the earlier or more severe cases it may rise thereafter; but often it will continue to fall after the exercise is ended, and remain for some time at a lower level. In a patient free from glycosuria with persistent hyperglycemia, one fast-day with exercise may reduce the blood-sugar as much as several fast-days without exercise. If glycosuria is produced in a patient by adding either carbohydrate, protein, or fat to the diet, it is frequently possible to abolish this glycosuria by exercise while continuing the increased diet.

It seems advantageous to give exercise especially after a meal containing carbohydrate or

other food tending to produce glycosuria, although, when patients are able, they exercise at all times of the day. At present, short periods of vigorous exercise with rests between are preferred to long slow walks, which might tire the patient even more. The exercises now suggested are running up and down stairs, jumping rope, throwing a heavy "medicine ball," and turning somersaults. Tennis and other hard games should probably be beneficial. At first, precautions may be taken against the nervousness and sleeplessness sometimes caused by over-weariness in weak patients. Otherwise, patients are worked right up to the limit of their strength, somewhat like athletes in training. In regard to the reduction in weight which has been advised in the fasting treatment, the question has arisen as to what kind of tissue it is desired to reduce. The answer seems to be that it is desirable to reduce fat and reserve tissues, and build up active muscular tissue. With this end in view, the emaciated, flabby-muscled diabetic is turned into an athlete as far as practicable. During exercise, no attempt is made to shield the patient against excitement, invigorating cold, or any similar influences previously dreaded in diabetes. It is hoped that an end may be put to the period of pale, feeble diabetics, dressed in double underwear while hugging the radiator and growing more neurasthenic all the time. Some of the exercises above mentioned are planned to shake up these patients and break up their former bad habits, both physically and psychically. The patients feel much better: they are kept occupied during the day, and sleep well at night. Hunger may be partly satisfied by vegetables and bran cakes, but in general exercise has increased appetite less than it has increased the power to satisfy appetite. The patients can take a somewhat more liberal diet, and enjoy the possession of somewhat greater weight and strength; but the increase of weight in this instance consists of muscle not fat.

It is hoped that this addition to the treatment of severe diabetes will prove of especial value to children, to patients with persistently low tolerance, and perhaps to some of that class previously so hopeless, viz. tuberculous diabetics. For the ordinary type of patients it may be a means of getting results somewhat more quickly and thoroughly, and leading to a higher degree of both comfort and usefulness. The value of exercise is strictly limited. It cannot raise tolerance very high, and it is not equal to the dietary regime in importance. Results will be unfortunate if it is used merely as a means for shortening the hospital care of the patient, or for building up weight and strength at the cost of more important considerations. The radical and permanent control of the diabetes is the essential matter, and is to be judged by such things as glycosuria, acidosis and blood-sugar, not by a temporary sense of well-being. A stern program of fasting, low diet, and reduction of weight is still necessary as before, but it is hoped

that results may be more beneficial with the use of exercise as an additional detail of the treatment. The experiments with exercise are still in progress and will be published in detail later, together with a discussion of their theoretical bearings.

A STUDY OF THE STATISTICS OF THE NEW YORK STATE HOSPITALS FOR 1913, WITH SPECIAL REGARD TO STATISTICS REGARDING DEMENTIA PRAEDEX.

BY CHARLES T. LA MOURE, M.D., LAKEVILLE, CONN.,

Superintendent of the Connecticut Training School for the Feeble-Minded.

ON carefully studying the statistics of the New York State Hospitals for the year ending September 30, 1913, we find that 8269 patients were admitted, and 7294 were discharged, leaving a surplus of 975 patients. Of the number admitted there were 1021 cases of dementia praecox first admissions, or practically one-eighth of all admissions.

Of these 1021 cases of dementia praecox the following are the number and type of cases:

- 542 paranoid type (249 men; 293 women)
- 66 catatonic (39 men; 27 women)
- 239 hebephrenic (183 men; 116 women)
- 98 simple (59 men; 39 women)
- 16 unspecified (8 men; 8 women)

The greatest number of dementia praecox cases admitted, 233 (152 men; 81 women), were between 20 and 24 years of age, and 84 cases admitted (48 men; 36 women) were between 15 and 19 years of age. There was no history of insanity found in 537 of these cases (290 men; 247 women) or over 50%. There was no history of alcoholism found in 598 cases (298 men; 300 women), and no history of alcohol ascertained in 256 more of these 1021 cases. There was no history of any nervous disease found in 408 cases and none ascertained in 562 cases.

It is interesting to note that 718 of these cases were unmarried (438 men; 280 women) and that 228 cases were married (76 men; 152 women). Of these cases 643 (323 men; 320 women) had a common school education, seventy cases a high school education (36 men; 34 women) and 18 had a collegiate education (9 men and 9 women). Of these 1021 cases only 308 were classed as constitutionally inferior or defective (152 men and 156 women). There were discharged from the New York State Hospitals for the same year 606 cases of dementia praecox, of this number only 16 cases as recovered; 126 as much improved; 243 cases as improved; 221 cases as unimproved. As the statistics do not give the length of hospital residence of the discharged cases, certain deductions cannot be made.

During the same year 548 cases of dementia

praecox died—the greatest number (65) were between 35 and 39 years of age. The average age at death was: men, 46.8; women, 51 years or 49 years. The average length of hospital residence was 14.9 years for these 548 cases. One hundred and seventy-five of these cases died of tuberculosis of the lungs. The greatest number of deaths was from dementia paralytica (634 cases) and the average hospital residence was 1.4 years. There were 537 deaths among the senile cases, and their average hospital residence was 2.9 years. One hundred and eleven alcoholic cases died, and their average hospital residence was 5.1 years. One hundred and ninety-two manie depressive cases died, and their average hospital residence was 4.7 years. Seventy-seven cases of involutional melancholia died, and their average hospital residence was 4.5 years.

It cost the state \$200 per capita in 1913. If we look at these statistics from a financial point of view we find that the 548 cases of dementia praecox whose average life in the hospital was 14.9 years have cost the state \$1,633,040.00, while the senile cases cost only \$311,460.00. The 634 cases of dementia paralytica cost but \$177,520.00; the 192 cases of manie depressive, \$180,480.00; the 111 alcoholics, \$113,220.00; the 77 cases of involutional melancholia, \$69,300.00.

Of these 1021 cases of dementia praecox the paranoid form was most prevalent, as there were 543 of that type, and 45 more women than men so diagnosed. There were 98 cases of simple dementia praecox (59 men; 39 women), 299 hebephrenic type (183 men; 116 women), 67 more men of this type than women. Now with such a large number of first admissions diagnosed as dementia praecox, with 547 cases less than thirty years of age, with no history of insanity in 537 cases; no history of alcohol in 598 cases, and unascertained in 256 more cases, with only 308 cases of the 1021 cases classed as constitutionally inferior—with a history of 643 cases having had a common school education, 70 a high school, and 18 a collegiate education, does it not seem as if something more could have been done to relieve this form of mental disease—that special study should be devoted to this subject; especially as the pathologists have found no definite pathological change in the brains of cases of dementia praecox?

Some pathologists have claimed they found an atrophy in the cells in certain portions of the brain in cases of dementia praecox autopsied, but as most cases of dementia praecox live for years in a state of apathy without any mental activity, the atrophy of the brain cells is probably due to disuse. Until the pathologist can prove definite brain changes in cases coming to autopsy early in the disease, I shall continue to insist that whatever atrophy has been found in the brains is due to disuse of the mental processes and not to disease of the brain cells. As only 16 cases of dementia praecox were discharged as recovered during the year, and only 259 cases as improved, it proves conclusively that present

methods of treating this form of mental disease are lacking. I regret that the statistics do not give the type of dementia praecox of the 16 cases recovered or the length of their hospital residence. When I was in the Rochester State Hospital I was much surprised to discover that practically 50% of the permanent population of the hospital was diagnosed as dementia praecox. If this holds true for all the hospitals we can say that in 1913, 16,299 were cases of this type, and at \$200 *per capita*, and with an average hospital residence of 14.9 years, they will cost for their care \$48,651,120.00.

Clinical Department.

STUDIES IN SPEECH DISORDER.

No. 3.*

THE DEVELOPMENT OF A MENTAL DEFECTIVE BY VOCAL DRILL.

BY WALTER B. SWIFT, M.D., BOSTON,

In Charge of Voice Clinic, Boston State Hospital, Psychopathic Department; Instructor in Neuro-pathology, Tufts Medical School.

ABSTRACT: AN ALMOST HOPELESS DEFECTIVE.—DRILLED FOR MONTHS.—FINALLY SHOWED UNEXPECTED MENTAL DEVELOPMENT.

We are all interested in individuals who are much changed mentally. We too often picture brain and mind as pretty stationary, rather fatalistic, fossilized crystallization. We all have some time in our lives been sized up by others and this imprinted picture enforced upon us years later, after our mental makeup, our constellation of inter-related mental reactions, has found new channels, new interests and new aims. Many children never grow up to their parents. I should prefer to be treated like what I may possibly be five years hence, rather than like what I was five years back. It would be nearer absolute truth—for what I am thinking now in vague form will be printed then. Some men's minds are ever enlarging as years go on. The environs they place themselves in enforce it. Such men can never be thought of as stationary characters. Such men can never be pictured again as we pictured them the last time we met. If you do, they feel confined, belittled, unappreciated. It is fair to approach them only with open interest, ever inquiring. What is new?

It was after a start, teeming with hopelessness and doubtful of what vocal drill would accomplish, but yet willing to try, that I was finally driven into the state of mind typified by the question—what new—at almost every visit of

the case, I am about to present. Thus unexpected, even weird, unprophesied and unheralded came advance after advance to the little mind under drill, until what may be called a new constellation of inter-related ideals and interests settled down as the indwelling spirit of a formerly rather comparatively blank mentality.

These generalizations will be cleared up and take forms in concrete pictures by the presentation of the case:—

CASE. William Morgan, boy, aged 11; American; school grade 3. Vocal record:—

Complaint. "Brought for voice examination."

Present Condition. Makes vague efforts at articulation, which strangers do not understand. He is understood at home and his teacher understands him in school.

Previous History. Measles and chicken pox. At 4 operation for "tongue-tie." No relief. Began school at 4, always backward, especially in arithmetic, which he seems unable to grasp. Up to age of 8 could say only a few words. Much improvement in last three years.

Family History. Father and mother living and well; maternal grandmother died at 35 of tuberculosis. One maternal uncle had convulsions as a child and his speech was indistinct. He died at 16. Paternal grandfather dead. Cause unknown. Paternal grandmother alive and well at 65.

Physical Examination. (By Dr. W. P. Lucas.) "Poorly developed and poorly nourished for 11 years. Face slightly asymmetrical. Otherwise a complete examination is negative. No physical defects to account for his speech defect or mental condition."

Psychological Examination. Binet, 44.5 years. To a fair degree educable. Diagnosis: Mental defective.

Vocal Examination. In general, voice is vague and indistinct and characterized by short, sudden, explosive replies. Often says "yes" quite irrelevantly.

Vowels comply pretty well to local standards. *Consonants:* Explosives are good except "G." For "th" says "f"; for "r" gives a nasal twang.

Utterances show constant uninhibited imitation; almost an uncontrolled low speech reflex. For example, when asked to say peripatetic he says quickly "peptic," never dwelling with good execution upon details. "R" sometimes like "W," "S" and "th" very faulty. "D" and "Z" often omitted. Can be understood at home and by one teacher in school. Strangers cannot understand him.

Prognosis. Poor but worth trying.

Treatment. Given vocal exercises, breathing exercises and muscle gymnastics varying somewhat as time passed and different stages of development arose.

Continued for over eight months on an average of 1 to 2 hours daily.

At the end of this time the patient could pronounce all vowels correctly, enunciate all consonants perfectly when not in combination. He could say simple combinations of words and sentences and more difficult ones after some practice.

Besides these merely articulatory attainments he showed several lines of mental unfoldment as follows:—

After two months his teacher reported improvement in his reading in school. After three months parent reported he was making a stronger and

more continued effort in his home practice. Also is trying more to read words, understand pictures (as in newspapers) and understand what they mean.

After four months showed ability to learn a new poem in two days as well as he did his first poem in three weeks. After five months parent reported more interest in reading, a demonstration of more personal self-control, and better attention. Also has an increased interest in writing. After six months began to show improvement in speed of utterance. Arm movements during talking are less. During the eighth month showed a permanent forward advancement in mental powers, facial expression and interest,—shown in his reading the newspapers, drawing pictures, writing, and several other minor activities never shown before. Finally, he added to these changes a desire to tell stories at the table, such as describing an accident, or other occurrence he had seen in the street. After seeing acquaintances in the street, comes home and remarks on their dress, change of dress, etc. He also picks more words from the newspaper, spells them and asks their meaning, shows interest in the calendar, knows some of the months and wants to know the rest.

Discussion. To the thoughtful reader this case in a measure explains itself. It is a case of very dull, inactive mentality, acting with little initiative, poor concentration of attention, narrowed unintellectual mental processes—that by long vocal drill was developed out of all these qualities to a certain extent, and out of some of them to a very marked degree. The drill about tripled his mental horizon, his activities and interests. And all this within a year.

Treatment. The details of treatment I should prefer to reserve at this time as they are not yet crystallized in final form. Then, too, I should prefer to try them upon a larger number of other cases and reduce them to some sort of method or system before they are presented in final form. Results have been marked enough to warrant the report of this preliminary note. Elsewhere I plan to present this same ease in detail, psychologically analyzed, and at that time the steps of vocal drill will be presented in their relation to the various steps of mental change, as are to be pictured in that analysis.

Summary. Defective mentality subjected to an eight months' intensive vocal drill, with the result that a remarkable and unexpected mental development followed, showing in new initiative, wider interests, an extended observation and other minor mental manifestations.

time consumed is really considerable. Time thus spent is wasted. With this in mind experiments were undertaken to examine simultaneously several urines qualitatively for sugar by utilizing a water bath with perforated top. Such a water bath, with a plate perforated for test tubes, is to be found in most laboratories. Either the round or rectangular type is suitable and may be obtained at any laboratory supply house.

If Benedict's Solution is used the directions are as follows: The water bath, filled one and one-half inches, is placed over a large flame. While the water is coming to a boil about 5 c.c. of the re-agent are introduced into the same number of test tubes as there are urines to be examined. A very handy way is to have the tubes in a rack, and the solution can be run into them from a bottle. Eight drops of urine are now put into each test tube and the tubes immediately transferred to the boiling water bath and left for two and one-half minutes. Within 30 seconds to one minute the urines containing 0.5 per cent. or more sugar will have reduced the copper and in two and one-half minutes any specimen with a pathological trace of dextrose will be positive.

The method is just as applicable to Fehling's qualitative test. After the preliminary proof that the Fehling solution is not reduced by boiling, the tests are carried out in the ordinary manner and placed in the boiling bath two or three minutes.

ADVANTAGES OF THIS METHOD.

1. Multiple qualitative tests for sugar may be made simultaneously.
2. Bumping is avoided.
3. Test tubes are not broken.



REPLY TO AN ARTICLE BY DR. O. D. PHELPS ON A "NOB OF THE FRENUM OF THE UPPER LIP."

BY JOHN W. FARLOW, M.D., BOSTON.

In the BOSTON MEDICAL AND SURGICAL JOURNAL for September 9, 1915, there is an article by Dr. O. D. Phelps calling attention to the frequent occurrence of a nob of the frenum of the upper lip. From his observations he had come to the conclusion that these nobs were not of syphilitic origin, but he had been unable to find any reference to them in spite of a recent query in the *Journal of the American Medical Association*.

I have seen many instances of this nob or tab of the frenum and have called attention to it in my clinics and lectures. When the late Dr. Thomas Dwight, Professor of Anatomy in the Harvard Medical School, was writing his articles

A TIME-SAVING METHOD FOR MULTIPLE SUGAR ANALYSES.

BY B. H. RAGLE, M.D., BOSTON.

THE performance of a qualitative test for sugar in the urine requires, to be sure, scarcely three minutes—but, where there are ten or twenty urines to be examined, the amount of

for Piersol's Anatomy, he came to my clinic at the Boston Dispensary to examine the mouth and throat from a clinical point of view. I was able to show him a number of cases having the nob of the frenum.

In Piersol's Anatomy, 1907, page 1540, Prof. Dwight says: "There is a distinct frenum of mucous membrane passing from the anterior nasal spine to the middle of the upper lip. The free edge is often irregular and may have a nodular enlargement."

We saw no reason to consider them of specific or other pathological nature but merely as anatomic peculiarities, perhaps from irregularity of growth, as often occurs near a bony suture.

Book Reviews.

Practical Materia Medica and Prescription Writing. By OSCAR W. BETHEA, M.D., Ph.G., F.C.S. Philadelphia: F. A. Davis Company. London: Stanley Phillips. 1915.

The author has compiled in the first part of the work a very satisfactory résumé of the *Materia Medica*. Briefly and in succinct form, we have spread before us all articles of medicinal value, their form, solubilities and doses. Included in this are numerous prescriptions, containing the articles mentioned, which have been largely copied from well known works on clinical medicine and treatment, but all of these, unfortunately, partake to a certain extent of the "shot gun" variety. Even though substantiated by such noted authors as are quoted, we cannot fail to admire the modern teaching, of the simple prescription, with its three parts, which are supposed to heal, "*cito, certo et iucunde.*" A short discussion on the limited amount of Latin needed in prescription writing follows, and while the author may be an admirable authority on pharmacy, his Latin does not comply with what the writer learned years ago in school and college. His translation of *Fiat* is "make thou," while the former literal translation was "let there be made."

His demonstration of the metric system and its employment in prescriptions is hardly consistent with the customs of the countries in which this system is employed exclusively. For instance, he objects to the use of the period between grams and fractions of grams, and insists upon the use of a perpendicular line. In Germany, from personal experience, prescriptions written in this way, were rejected by pharmacists and the period always insisted upon. It would seem to be equally necessary when dollars and cents are written, invariably to have the perpendicular line dividing the total and the fraction. His insistence upon the absent figures,

to the right of the period being replaced by zeros, is to be thoroughly commended.

The second part of the volume is really the more valuable. Here, we find a most common sense and practical demonstration of prescription writing. Every point, with reference to compatibility, arrangement, forms and administration, is carefully considered. Furthermore, with homely illustrations, he points out the errors which are every day committed by practically every practising physician, and in a series of illustrations, shows how a prescription should not be written and in the same page the errors of the former, by writing it in satisfactory form with reasons for the change. Still, his semi-commendation of proprietary preparations will hardly impress the younger physician of the present day, when students of all first class medical colleges are taught, both by didactic lessons and by experience in the inspection and handling of drugs, to write for articles which will be not only effective in combination, but elegant in appearance and pleasant in taste.

Henry Phipps Institute for the Study, Treatment and Prevention of Tuberculosis. Tenth and Eleventh Reports. Philadelphia: Henry Phipps Institute. 1915.

These two recently published reports of the Henry Phipps Institute continue the work of that organization in publishing the results of its research. The tenth report, by Dr. C. M. Montgomery and Dr. E. A. Eckhardt, deals with pulmonary acoustic phenomena, being an investigation of some of the factors concerned in the origin and transmission of sounds heard over the lungs in health and in disease. Particular attention is devoted to the voice sounds, spoken and whispered, and to the respiratory or breath sounds. The work is illustrated by an admirable table of diagrams representing the operation in some of the pulmonary and pleural conditions of reflection and diffusion as the most important factors that diminish sounds on their way through the chest. The eleventh report, by Dr. Frank A. Craig, records a study of the housing and social conditions in selected districts in Philadelphia, with especial reference to the relation of these to the incidence and prevalence of tuberculosis. The number of houses investigated in this study was 1003 and the number of people living in these houses was 5812. The work is abundantly illustrated with tables, graphic charts, diagrams and full-page plates, and by a large folding map of the district of the city investigated. An appendix contains a reproduction of the charts used in collecting the data for the report. Both these reports are useful contributions to the literature of progress in the knowledge of tuberculosis.

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WORK OF MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.

ATTENTION is called to the program of the approaching mental hygiene conference and exhibit, which is to be held in Boston on Wednesday, Thursday and Friday of next week, November 17, 18 and 19. The program is published in full on page 757 of this issue of the JOURNAL. This meeting and exhibit are designed to exemplify the work which is being done by the Massachusetts Society for Mental Hygiene in its activities for the prophylaxis of mental disease and to afford occasion for the discussion of problems connected with this work and hopefully for the advancement of knowledge in its conduct.

As a leading article in this issue of the JOURNAL, we also publish an address by Dr. Frankwood E. Williams, executive secretary of the Society for Mental Hygiene, on legislation

for the insane in Massachusetts with particular reference to the voluntary and temporary care laws. This address, originally delivered before the Bristol and Essex North District Medical Societies, will appear as publication No. 5 of the Society. The fourth of these publications was the annual discourse before the Massachusetts Medical Society in 1912, delivered by Dr. Walter E. Fernald of Waltham on "The Burden of Feeble-mindedness" and published in the issue of the JOURNAL for June 13, 1912 (Vol. clxvi, p. 911). In the issue of the JOURNAL for June 24, 1915 (Vol. clxxii, p. 933) we also published another article by Dr. Williams on "Psychopathic Hospitals and Prophylaxis." These three papers, though separated by some interval from one another, are indicative of the type of work encouraged by the Massachusetts Society for Mental Hygiene and of the research accomplished by the physicians engaged in its activities. There is an immense field for profitable investigation in the great domain of mental diseases and abnormalities. The attention of the profession is particularly called to the importance of this work in the hope of inviting the interest of general practitioners, as well as of specialists in nervous and mental disease, in the work of the Massachusetts Society for Mental Hygiene and in its coming conference and exhibit.

REPORT OF THE HARVARD UNIVERSITY SURGICAL UNIT.

In another column of this issue of the JOURNAL we have the pleasure and privilege of publishing simultaneously with the *Harvard Alumn Bulletin*, the full text of the official report prepared by Dr. Greenough of the work done by the Harvard University Surgical Unit at the American Ambulance Hospital, Neuilly, Paris France, during its period of service there from April 1 to July 1, 1915. The financial sponsor of the expedition, it will be remembered, was Mr. William Lindsey, whose loyal generosity made possible the performance of a work once so creditable to the University and so valuable to those engaged in it. In his letter transmitting this report to the President and Fellows of Harvard College, Dr. Harvey Cushing in behalf of the department of surgery, and whose charge the expedition was conducted, writes in part as follows of the report and the work which it chronicles:

"The story of the Ambulance is doubtless more or less well known to you; but, as is true of most of the non-partisan activities in which philanthropic Americans have engaged on the fringe of the European conflict, fitful gossip and the news columns have sometimes dimmed the lustre of what is really a great work. To this the American Ambulance has been no exception, but whatever misgivings on this score may have been raised in the mind of any member of our expedition before his departure, they were promptly dispelled on the inauguration of our actual work, which each of us was loth to leave at the expiration of his time.

"It was gratifying to feel that we were of assistance to the wounded who came under our care, and this after all was the purpose for which we were sent. We trust, furthermore, that the service rendered was of such quality as to be worthy of the University in whose name it was performed. As Dr. Greenough points out, the Medical School will profit materially through collections presented to us by the Ambulance Committee, which will make a notable addition to the Warren Museum.

"I think I may safely express the feeling of our contingent by the statement that in the event of a second invitation to take over a similar service, they would urge its acceptance by the University and if given leave of absence would themselves again gladly volunteer as applicants for the various positions."

Already the achievements of American medicine and surgery in the European war have elicited comments of approval and admiration from the profession of the several European nations. As the war continues, further opportunity for similar and more extended service by American physicians and surgeons will constantly arise. At the present time a third Harvard Surgical Unit is about to sail for Europe for a six months' service. American physicians are at present actively engaged in relief work in Belgium, England, France, Germany and Russia. Opportunities such as the present for experience in military medicine and surgery during war will probably not occur again during the lifetime of any now engaged in professional activity. Unfortunate though the occasion of these opportunities may be, they should promptly be accepted by American physicians, not merely for the personal benefit and experience which they may afford, but for the credit which they may reflect upon the American profession and for their service to the interests of humanity.

A RABELAISIAN MEDICAL COMEDY.

THERE was more than coincidence, there seemed appropriate intention, in the selection of the opening night of the recent Clinical Congress of Surgeons in Boston for the *première* of "The Man who Married a Dumb Wife." This delightful little curtain-raiser of Anatole France, played as a prodrome to Shaw's "Androcles," is an exquisite bit of medical farce-comedy done by a modern in the best manner of Molière. Moreover, not only does the story concern doctors, but it was originally told by a physician, Maitre François Rabelais, the cynic philosopher of the sixteenth century.

In his grotesque and flamboyant chronicle of "Gargantua and Pantagruel," that unique conglomerate standing in literature midway between Boccaceo's "Decameron" and Burton's "Anatomy of Melancholy," Rabelais records a joyful incident in the student days of one of his characters at the University of Montpellier. The following translation of this passage is taken from the version of Sir Thomas Urquhart:

"Welcom, in good faith, my dear master, welcom! It did me good to hear you talk, the Lord be praised for all. I do not remember to have seen you before now, since the last time that you acted at Montpellier with our ancient friends, Anthony Caporra, Guy Bourguier, Balthasar Noyer, Tolet, John Quentin, Francis Robinet, John Perdrier and Francis Rabelais, the moral comedy of him who had espoused a dumb wife.

"I was there," quoth Ephistemon, "The good, honest man, her husband, was very earnestly urgent to have the fillet of her tongue untied, and would needs have her speak by any means. At his desire some pains were taken on her, and partly by the industry of the physician, and partly by the expertness of the surgeon, the encliglotte which she had under her tongue being cut, she spoke, and spoke again; yea, within a few hours she spoke so loud, so much, so fiercely and so long, that her poor husband returned to the same physician for a receipt to make her hold her peace. "There are," quoth the physician, "many proper remedies in our art to make dumb women speak, but there are none that ever I could learn therein to make them silent. The only cure which I have found out is their husbands' deafness." The wretch became within a few weeks thereafter, by virtue of some drugs, charms of enchantments, which the physicians had prescribed unto him, so deaf that he could not have heard the thundering of 1900 cannon at a salvo. His wife, perceiving that indeed he was as deaf as a door-nail, and that her scolding was but in vain, sith that he heard her not, she grew stark mad.

"Then the doctor, asking for his fee, the husband answered that truly he was deaf, and so was not able to understand what the tenor of this demand might be. Whereupon the leech bedusted him with a little, I know not what, sort of powder, which rendered him a fool immediately, so great was the stuftifying virtue of that strange kind of pulverized dose. Then did this fool of a husband and his mad wife join together, and, falling on the docto[r] and surgeon, did so scratch, bethwack, and bang them, that they were left half dead upon the place, so furious were the blows which they received. I never in all my lifetime laughed so much as at the acting of that buffoonery."

This incident, in which Chaucer would have rejoiced as keenly as did Rabelais, was the one selected by M. France as the basis of his play, and he has expanded it into an exquisite bit of comic characterization and satire in the fashion not of Rabelais, but of Molière at his best. In the physician, surgeon and apothecary who come to cure the dumb wife, one can see the counterparts of characters in "Le Médecin Malgré Lui" or "L'Amour Médecin." It was Molière's instinct to caricature and lampoon the medical profession of his time, just as he made fun of the clergy, the law and the scholiasts, but always genially and without sarcasm. France has caught this manner to perfection and, in his subtle ridicule of the doctors, merely pokes fun at their obvious shams and bombast. Take, for instance, the praise of the physician, Maître Simon, which he puts into the mouth of the surgeon, Jean Maugier:

"Oh! qu'il faut être reconnaissant aux savants médecins qui, tels Maître Simon Colline, travaillent à nous conserver la santé et nous soignent dans nos maladies. Oh! qu'ils sont dignes de louanges et de bénédictions, ces bons médecins qui se conforment dans la pratique de leur profession aux règles d'une savante physique et d'une longue expérience."

Again, when Léonard, the husband of the dumb wife, queries whether an apothecary need also be present at the operation, Maître Simon replies, "Oui, Monsieur, et quiconque en doute ignore totalement les relations des organes entre eux et leur mutuelle dépendance." Finally, the three are gathered for the procedure, before and after which they drink copiously at the expense of Léonard. Fee-splitting and medical perquisites were the rule of those days. Later, when the dumb wife, become garrulous, has driven her husband to distraction, the consultants are again summoned to reverse the process,

which, however, Maître Simon declares impossible:

"Hélas, monsieur le juge, il n'est élixir, baume, magistère, opiat, onguent, emplâtre, topique, électuaire, panacée pour guérir chez la femme l'intempérance de la glotte. La thériaque et l'orviétan y seraient sans vertu, et toutes les herbes décrites par Dioscorides n'y opéreraient point."

The only alternative is deafness for the husband, and this, says Simon, may be produced in various ways:

"Maître Simon. La cophose ou surdité peut être obtenue de plusieurs manières. On la produit soit par l'otorrèe, soit par les oreillons, soit par la selrose de l'oreille, soit par l'otite, ou encore par l'ankyllose des osselets. Mais ces divers moyens sont longs et douloureux.

Léonard. Je les repousse! . . . Je les repousse de toutes mes forces.

Maître Simon. Vous avez raison. Il vaut mieux obtenir la cophose par l'influence d'un certaine poudre blanche que j'ai dans ma trousse, et dont une pincée, introduite dans l'oreille, suffit pour vous rendre aussi sourd que le ciel dans ses jours de colère.

Léonard. Grand merci, Maître Simon Colline; gardez votre poudre. Je ne veux pas être sourd.

Maître Simon. Quoi, vous ne voulez pas être sourd? Quoi, vous rejetez la cophose? Vous fuyez la guérison que vous imploriez tout à l'heure? C'est un spectacle trop fréquent et bien fait pour porter la douleur dans l'âme d'un bon médecin, que celui du malade indocile qui repousse le remède salutaire . . .

Maître Jean Maugier. . . . Se dérobe au soins qui soulageraient ses souffrances . . .

Maître Seraphin. . . . Et refuse d'être guéri."

Two pages of chatter by Catherine, however, make Léonard change his mind and the powder is employed. Then the consultants are sound beaten and bitten and the comedy closes with the rollicking horse play of which the mediaeval drama was so fond.

France is felicitous, too, not only in his characterization, but in some of his indirect medical comment. For instance, Maître Adam, who first counsels the operation on Catherine, comments as follows on the difference between deafmutes who learn to speak and dumb persons who are not deaf.

"Les médecins, apothicaires et chirurgiens, s'ils parviennent à faire parler un sourd-muet, ce n'est jamais que d'une langue aussi souple que son oreille. Il n'entend ni ce qu'on lui dit ni ce qu'il dit lui-même. Il en va tout autrement des muets qui entendent. C'est un jeu, per-

un médecin, que de leur délier la langue. L'opération coûte si peu qu'on la fait journallement sur les petits chiens qui tardent à aboyer."

Evidently the training of deaf-mutes was known before the days of Froebel and Horace Mann.

There is, perhaps, little of twentieth century relevance in the farce of "Celui Qui Épousa une Femme Muette," but the spirit of its satire and of its human allusion are as genuine today as in the time of Rabelais or Molière.

MEDICAL NOTES.

THE WEEK'S DEATH RATE IN NEW YORK.—During the last week of Commissioner Goldwater's administration there were 1194 deaths in the city of New York, and a death rate of 10.73 per one thousand of the population, as compared with 1134 deaths and a rate of 10.60 in the corresponding week of 1914, an increase of 60 deaths and of .13 of a point in the rate. According to the Health Department's statistician, there was a decrease of 50 per cent. in the death rate from diphtheria and croup, and an increase of about 10 per cent. in the acute respiratory diseases. The mortality from the remaining causes was about the same as that of last year.

Viewed from the point of age grouping, the deaths of children under five was considerably below that of the same week last year, while that of persons 65 years of age and over was considerably higher, the one almost counterbalancing the other.

The death rate from the first of January to date was 13.18 per one thousand of the population, as compared with a rate of 13.59 during the corresponding period in 1915, a decrease of .41 of a point.

GIFTS IN MEMORY OF PHYSICIANS FOR MEDICAL EDUCATION.—In his recent annual report, the president of Western Reserve University announces the gift of a sum of \$40,000. for the endowment of the medical school of the University, to be established as a fund in the name of the late Dr. Hunter H. Powell, who gave his life to the service of the school. President Thwing also suggests the establishment of a similar special fund in memory of the late Dr. Dudley P. Allen, the income to be used "for research in the science of surgery or for the support of its practice."

NATIONAL COMMITTEE FOR THE PREVENTION OF BLINDNESS.—The annual meeting of the National Committee for the Prevention of Blindness was held at the New York Academy of Medicine on Thursday of last week, November 4, under the presidency of the Honorable Joseph

H. Choate. Addresses were delivered by the Honorable William H. Taft and Dr. George E. DeSchweinitz, professor of ophthalmology in the University of Pennsylvania.

NATIONAL SOCIETY OF KEEP-WELLS.—In the issue of the Washington *Star* for October 27, is reported the organization in that city of a new lay society denominated the National Society of Keep-Wells. This society is organized for the purpose of holding lay meetings to be addressed by physicians on topics of hygiene and preventive medicine.

REGULATION OF THE PRACTICE OF MEDICINE.—The medico-legal bureau of the American Medical Association has recently compiled a digest of the case law on the statutory regulation of the practice of medicine which will be issued for the benefit of the legal and medical professions, of legislators and of the public.

MARRIAGE OF TUBERCULATES.—In the weekly report of the United States Public Health Service for Oct. 22 appears the following statement of a recent judicial decision annulling the marriage of a person who concealed the fact that he was suffering from tuberculosis:

"The courts have held in a number of instances that the marriage of a person suffering from a venereal disease might be annulled at the instance of the other party to the marriage when the existence of the disease had been concealed. The Supreme Court of the State of New York, in Sobol vs. Sobol (p. 3175 of this issue of the Public Health Reports) carries this legal principle one step farther.

"The defendant (the husband) had been treated for tuberculosis and knew that he was suffering from the disease. He concealed this fact from his fiancée, and explained certain symptoms by saying that he was suffering from a cold. After the marriage his wife discovered the nature of his illness and brought suit to annul the marriage. No issue resulted from the union.

"The court decided that, in view of the possible serious consequences of such a marriage to the wife, to the children if any should be born, and to the community, the marriage contract should be annulled. The legal basis of the decision was the fraud of the defendant in concealing and misrepresenting the condition of his health."

PREVALENCE OF MENINGITIS, POLIOMYELITIS AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for October 22, states that during the month of September, 1915, there were in Maryland six cases of cerebro-spinal meningitis, seven of poliomyelitis and 609 of typhoid fever. During the same period there were in Massachusetts five cases of

meningitis, sixteen of poliomyelitis and 322 of typhoid. There were 274 cases of typhoid fever in New Jersey.

APPOINTMENT OF DR. HAVEN EMERSON.—Dr. Haven Emerson, formerly Deputy Commissioner and Sanitary Superintendent, will succeed Dr. S. S. Goldwater as Commissioner of Health of New York City. Dr. Emerson is well-known as a capable and efficient public health administrator and will, no doubt, continue the work and accomplishment of this important department in a manner commensurate with its opportunities and necessities. An address which Dr. Emerson delivered before the Harvard Medical Alumni Association on "The Relation of the Medical Profession to Preventive Medicine" appears in the JOURNAL of October 21, 1915. Of the work of Dr. Goldwater, editorial comment was made by the JOURNAL at the time of the publication of Dr. Goldwater's address to the Boston Dispensary on "Dispensaries: A Growing Factor in Curative and Preventive Medicine" (April 29, 1915, Vol. clxxii, No. 17).

SOURCE OF FOOT AND MOUTH DISEASE.—On November 2, the United States Department of Agriculture issued at Washington an official statement regarding the recent rerudescence of foot and mouth disease in Illinois. This out-break has been traced to a supply of anti-hog cholera serum prepared from the blood of hogs infected with foot and mouth disease, but showing no symptoms at the time. The serum was tested before being used but no evidence of contamination was found. Tests subsequent to the reappearance of the epizootic, however, show that the serum was infected. The Department makes the following statement relative to the control of the manufacture of this serum.

"The problem of producing serum which will be effective in controlling hog cholera and at the same time will be absolutely safe in general use is complicated by the fact that the Department of Agriculture has no authority over serum plants which dispose of their products exclusively in the State in which they are manufactured. Such establishments are amenable alone to State law and regulation. The virus act confers no authority on the Department to guarantee or certify any commercial serum, nor does it provide for a continuous examination and inspection of serum establishments, such as the meat inspection law provides for packing houses. The Department can control only serums and analogous products in interstate commerce when there is evidence that they are contaminated, dangerous or worthless, or when the manufacturer is not licensed to engage in such interstate business. The virus act was passed about two years ago, and within the short time intervening between its passage and the outbreak in 1914, and with the facilities available, the Department extended its inspection over serum plants just as far as the law and circumstances permitted. There were in October, 1914, about ninety serum

plants holding Federal licenses, located at widely separated points in the United States. This condition rendered continuous inspection very expensive and impossible with the funds legally available for the purpose."

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY.—The sixth annual meeting of the American Association for Study and Prevention of Infant Mortality is to be held in Philadelphia, November 10-12, 1915.

The subjects to be discussed include:

Eugenics.

Effect of the economic standing of the family on infant mortality.

Infant welfare nursing in small cities, towns and rural districts.

Institutional mortality.

Midwifery conditions.

Treatment and prevention of respiratory diseases.

Mr. Homer Folks of New York is president of the Association, and Dr. S. McC. Hamill of Philadelphia, president-elect for 1916. Dr. Joseph S. Neff, 801 Weightman Building, Philadelphia, is chairman of the Committee on Local Arrangements.

The sessions will be under the chairmanship of the following:

Eugenics—Dr. Wm. F. Snow, New York City.

Pediatrics—Dr. Charles A. Fife, Philadelphia.

Obstetrics—Dr. Mary Sherwood, Baltimore.

Economic Aspects of Infant Welfare—Mo Sherman Kingsley, Chicago.

Nursing and Social Work—Miss Ella Phillip Crandall, New York City.

The session on Economic Aspects of Infant Welfare will be a joint one with the Philadelphia County Medical Society and will be held at the College of Physicians. All other sessions will take place at the Bellevue-Stratford Hotel.

The provisional program for this meeting contains promise of a number of interesting and important papers. Among the Massachusetts physicians who are to present addresses are Dr. John Lovett Morse and Dr. James Lincoln Huntington of Boston. A more extended account of this conference on infant mortality with comment on certain aspects of the problems which it involves will appear in next week's issue of the JOURNAL.

SPECULATION IN DRUGS.—In continuance of the comment on the increased cost of drugs as a factor of speculation in the production of this increase, may be quoted the following item from a recent issue of the *New York Commercial*.

"The unprecedented upheaval in drug and chemical market conditions growing out of the derangement of former sources of supply in Europe, Russia, Asia, Turkey, Egypt, Japan and China and the Far East, has resulted in advances ranging anywhere from ten to more than

one hundred per cent. since June 1, a period of less than six months.

"If we accept the explanations of leading handlers of drug and chemical products the cause of these conditions lies almost wholly in the curtailment of foreign drug supplies. So diversified is the business in drugs, chemicals and dye materials and allied products, however, that no single interest or even group of interests is in a position to offer satisfactory explanations justifying the present extraordinary position of the market.

"Were an investigation to be conducted the ultimate findings would no doubt be that, notwithstanding the rigid restrictions placed upon outgo by American manufacturers and first hands, of the most important products, speculators have succeeded in corraling great quantities which have been purchased by those belligerents in Europe still in position to receive shipments from America at fabulous prices.

"Quinine occupies the centre of the stage today, the price having advanced from a normal figure of around 28 cents an ounce to \$2.25 an ounce. The domestic production of this article is only one-half of what the annual imports of foreign sulphate amount to. It is said by authorities that more than 500,000 ounces of quinine have been exported to Europe since the commencement of the European war. The action of the domestic makers in restricting the outgo to their regular customers to their bare pro rata share of what remains in the hands of the former interests is commendable, but is tantamount to locking the stable door after the horse has made its escape.

"Exceptional conditions have, of course, appeared in a great number of drug products which have justified reasonable advances. The efforts at domestic production of aniline oil, beta apthol, para-nitra aniline, carbolic acid and a great many other chemicals which were formerly obtained almost exclusively from Europe have provoked much attention. Speculators have seized the supplies of these products as well as many other stable articles, however, and in the wild scramble for dollars the industrious chemist who has been endeavoring to supply the much-needed trade wants of today has been relegated to oblivion."

Another evil of this situation is that a spurious aspirin, consisting of calcium, starch, alum, cream of tartar, citric acid, and milk sugar, has been produced and is being marketed; likewise a posalvarsan equally fraudulent. The United States Department of Agriculture has issued a warning against these preparations.

AWARD OF NOBEL PRIZE.—Report from Stockholm on October 30 announces that the Nobel prize in medicine for 1914 has been awarded to Dr. Robert Barany of the University of Vienna for his work in physiology and pathology. Previous awards of the Nobel Prize in medicine and physiology have been made as follows:

1901, Dr. Emil von Behring, for his work on sero-therapy in diphtheria; 1902, Dr. Ronald Ross, for his work on malaria; 1903, Dr. Niels R. Finsen, for his work on the photo-therapy of lupus; 1904, Dr. Ivan Petrowitch Pawlow, for his work on the physiology of digestion; 1905, Dr. Robert Koch, for his work on tuberculosis; 1906, Dr. Camillo Golgi and Dr. Santiago Ramon y Cajal, for their work on the anatomy of the nervous system; 1907, Dr. Charles Louis Alphonse Laveran, for his work on the protozoa; 1908, Dr. Paul Ehrlich and Dr. Elie Metchnikoff, for their work on immunity; 1909, Dr. Theodor Kocher, for his work on the physiology, pathology and surgery of the thyroid gland; 1910, Dr. Albrecht Kessel, for his work on protein substances; 1911, Dr. Alvar Gullstrand, for his work on optics; 1912, Dr. Alexis Carrel, for his work on the suture of vessels and the transplantation of vessels and organs; 1913, Dr. Charles Richet, for his work on anaphylaxis. The award of the prize for 1915 will be reserved until 1916.

EUROPEAN WAR NOTES.

AMERICAN RED CROSS UNIT IN GERMANY.—Report from Rome states that on October 29, Dr. B. W. Caldwell and other American Red Cross surgeons, passed through that city on their way to Germany through Switzerland. The unit which they composed is to undertake the medical care of Russian prisoners in Germany.

RETURN OF DR. BEAL.—Report from New York states that on October 31, Dr. Howard W. Beal of Worcester, Mass., landed in that city aboard the steamer *Rotterdam* from Falmouth to England. For the first fourteen months of the war Dr. Beal has been in the service of the American Red Cross in England and has had charge of the American Women's war hospital at Paignton, Devonshire. At the close of his service there Dr. Beal was awarded the British Red Cross medal and was received by a committee of thirty prominent British physicians including Sir William Osler, Sir Alfred Keough, medical director-general of the British army and Sir Arthur May, medical director-general of the British navy.

CHOLERA IN AUSTRIA HUNGARY AND GERMANY.—During the week ended August 14, there were in Austria 3775 cases of Asiatic cholera with 2008 deaths, the majority being among the civil population. Of these cases 3532 with 1979 deaths occurred in Galicia. In Hungary during the week ended August 15 there were 388 cases of cholera with 242 deaths. During the week ended September 11, 1915, there were only three cases of cholera in Germany all among civilians. There were isolated sporadic cases of the disease among prisoners in detention camps at Bromberg, Frankfort, Magdeburg, Marienwerder, Oppeln and Potsdam.

WORK OF THE LAFAYETTE FUND.—The work of the Lafayette Fund, one of the principal New England funds for European war relief, has consisted in the distribution among soldiers at the front of kit bags containing surgical dressing materials and other necessities valuable to soldiers in action or in the trenches. Over 25,000 of these kits have already been distributed. The chairman of the Boston committee of this fund has recently received the following appreciative letter from the American Relief Clearing House in Paris, relative to the work done by this fund.

"We think it would be interesting to you to know that we have recently passed the number of 25,000 Lafayette kits, which we have distributed to the soldiers at the front in your name. We are sending this information next week to the Paris papers, telling the French people of your generosity and of the remarkably useful selection of things which you have chosen to put in these Lafayette kits, which, without doubt, have proven to be the best hit of the war in their way.

"We should like to repeat to you the truly genuine appreciation and gratefulness of every soldier who receives one of these kits. They all demand them—every man in the army would like a Lafayette kit, and soldiers, when they return to Paris for their few days' vacation from time to time, are constantly beseeching us for one of these famous gifts. With very rare exceptions, however, we never distribute kits in Paris. We take the greatest pains and the greatest care in our distribution, and no soldier at the front who makes application can have one unless his application has been countersigned by at least his captain. We believe, as we have written elsewhere to you, that one of the most efficient methods, and one that would please you most, is the personal distribution of these kits to those soldiers of whom we have some knowledge. We are, therefore, preparing daily about eighty individual kits at our warehouse, which we send off the following morning.

"It may be interesting to you to know that the regulations call for all kits and other small packages to be sewn up in white cloth with the name written thereon in indelible ink. It is a great pleasure for us, however, to take this extra care for these much-appreciated gifts and we take great pride and great satisfaction in distributing them in your name to those who find so much pleasure in receiving them."

All checks and money orders should be made payable to Lafayette Fund and mailed to the Old Colony Trust Company, 17 Court Street, Boston.

WAR RELIEF FUNDS.—On Nov. 6 the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund, \$277,704.36; American Ambulance, \$66,897.00; British Fund, \$23,450.89; French Fund, \$21,684.82; St. George's Fund, \$12,095.51; La Fayette Fund, \$11,013.99; Italian Fund, \$10,768.69; Allied Fund, \$10,307.00; Surgical Dressing Fund, \$6901.00.

BOSTON AND NEW ENGLAND.

BOSTON DEATH-RATE LOWER.—During the week ending October 30 there were 180 deaths reported with a rate of 12.90 per 1000 of population as compared with 213 deaths and a rate of 15.43 for the corresponding week of last year.

The principal differences were in tuberculosis which numbered 16 deaths for the week against 30 last year, and in diarrhea and enteritis under 2 years which numbered 8 deaths for the week against 21 last year.

For the same week there were 34 deaths under 1 year of age as compared with 43 last year. Of these 34, 3 were less than one day old and 6 less than 1 week; 10 died in hospitals; 5 died of diarrhea and enteritis in hospitals and 3 of the same disease at home.

The total number of 1915 deaths reported up to noon of October 21 is 9821 against 9756 in the same period last year. Inasmuch as Boston's population is about 8000 greater than last year these totals indicate a slightly lower rate this year than last.

Deaths under 1 year reported from Jan. 2 to Oct. 30 number 1671 against 1666 for the corresponding period last year.

SUMMARY OF VITAL STATISTICS.—Boston had 793 deaths reported in the four weeks ending October 30, against 841 in the corresponding period last year, and a death-rate of 14.20 against 15.23.

Reported deaths of non-residents numbered 116 against 103 last year.

Of deaths from reportable diseases the principal decreases were:

Tuberculosis (all forms)	26
Diphtheria	9
Scarlet fever	4

and the principal increase was:

Whooping cough	10
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Other important differences were as follows:

DECREASES.	
Organic diseases of heart, endocarditis and nephritis	29
Diarrhea and enteritis (under 2 years)	18
Premature birth	14
Cancer	8
Diarrhea and enteritis (2 years and over). .	8

INCREASES.	
"Other causes"	50
Violent	5
Pneumonia	5

There were 17 less deaths under 1 year, 4 less under 5 years and 39 less over 60.

Deaths under 1 year reported from Jan. 2 to Oct. 30 number 1671 against 1666 for the corresponding period last year.

The total number of 1915 deaths reported up to noon, Oct. 31 is 9821 against 9756 in the same period last year.

Mortality Report for the four weeks and the same period in 1914:

	1915	1914
Total deaths	793	841
Non-residents	116	103
Rate	14.20	15.23
Corrected rate (Non-residents deducted)	9.10	10.03
Deaths under 1 year	149	166

HOSPITAL BEQUESTS.—The will of the late Warren M. Hill of Boston, which was filed at the local probate office on Nov. 1, contains a bequest of \$2500 to the Woman's Charity Hospital, Roxbury.

The will of the late Luther Hills Pierce of Chicago, who was born at Bangor, Me., in 1837, contains a bequest of \$100,000 to the Eastern Maine General Hospital, located at Bangor.

LONG ISLAND HOSPITAL.—The eighteenth annual report of the Boston Infirmary Department for the year ending January 31, 1915, states that the average population at Long Island has been 1000, an increase of 91 over the previous year. The cost per capita in the hospital was \$5.99. The new buildings begun in 1913 are completed and occupied. The kitchen building and bakery have been equipped with the most approved machinery and appliances and the men's dormitory has been rebuilt to form an administrative center for the entire group of buildings. Funds have been appropriated for the erection of a nurses' home with accommodations for about eighty nurses and two ward buildings with a capacity of fifty-four beds each. The visiting medical staff of the hospital call attention to the pressing need of laboratory facilities. They state that the opportunities at the Long Island institution are exceptional for men of earnestness and enthusiasm, that a pathological and chemical laboratory equipped in the most modern way would serve as a center for research and for the routine work of the hospital. It is not to be doubted, were such laboratories established, that the hospital would greatly benefit, not only as a most adequate means of training young men for the practice of medicine but also as a means to the more adequate and scientific treatment of its patients.

MASSACHUSETTS SOCIETY FOR MENTAL HYGIENE.—At a recent meeting of the Massachusetts Society for Mental Hygiene, Professor William H. Burnham, of Clark University, was elected president to complete the unexpired term of the late Judge Harvey H. Baker. Other officers of the Society for the ensuing year were elected as follows: Dr. Walter E. Fernald, vice-president; Dr. Charles E. Thompson, Gardner, secretary; John Koren, Boston, treasurer; Dr. Frankwood E. Williams, Boston, executive secretary. Members of the executive committee of the board of directors are Dr. James J. Putnam, Boston; Dr. Alfred E. P. Rockwell, Worcester;

Miss Edith N. Barleigh, Boston; Dr. Henry R. Stedman, Brookline, and Prof. Robert M. Yerkes, Cambridge.

NEW IDEAS IN THE CARE OF THE INSANE.—Another record of the therapeutic value of work in the care of the insane is found in the October bulletin of the Massachusetts State Board of Insanity. The superintendent of Danvers State Hospital reports the success of an experiment with a group of patients who were disturbed, restless and occasionally violent. About seventy strong, able-bodied inmates of this class were employed during the summer in reclaiming waste land along the Ipswich River. From three to four acres have already been made available for agricultural purposes and the effects of such systematic occupation on the part of the patients has been very encouraging. Even refractory cases who, by reason of violent and troublesome conduct, had led the vacant, fruitless lives of custodial cases, have become quieter and more amenable to order and hospital rules under the moral reaction of definite accomplishment.

In this connection it is interesting to note an experiment which is being tried in Germany. At Bedburg, in that country, a garden city for over 2000 lunatics has been established. German doctors have recognized that the method of keeping lunatics in asylums is a mistake. The best way to cure them, they say, is to give them as much freedom and open air as possible. The garden city of Bedburg consists of 36 large houses, each capable of accommodating 80 to 100 patients. A large farm has been established and stocked with cattle and horses. Everything that is necessary for a small town, in fact, is to be found in the newest of garden cities. It has even a theatre. The lunatics are free to walk about and to amuse themselves just as they like. They willingly work on the farm, and the women cook as eagerly and cheerfully for the others as though they were living in their own homes, free from insanity. The total cost of this ideal asylum was \$2,000,000.

Correspondence.

TREATMENT OF INSANE CRIMINALS.

NEW YORK, October 28, 1915.

Mr. Editor: Your editorial in the issue of October 21st, 1915, on "Re-education of Demented Patients in Hospitals for the Insane," should have very wide publicity and work great good to many sufferers.

What you write is unquestionably true of hospitals for the insane who are not criminals, but how much worse is it for those who are thus classified.

I am familiar with both, as far as may be. In the latter, there are no kindly and intelligent visitors, who are appreciative of the patients' needs and who are able and willing to aid them by visiting and giving games, or instructions, which would be of great service in helping improve their woe-begone condition. During many years, and while prisons and

prisoners sadly required reform and improvement. I did what I could. To-day, my mind and heart go out a great deal more to the lot of the criminal insane, and I urge most strongly the great need in the directions so well emphasized by you.

Could you not direct special attention to this urgent need by the daily press, so that not only in Massachusetts, but also in New York and other states, more will be done than is now being effected. Not long since, I had this in mind and wrote to the warden of one of our large state hospitals for the criminal insane, to enquire if I could not be the means of acquiring games of different kinds for the prisoners in his charge? The reply came to me, that the supply was already large, or sufficient, and that my efforts in this direction were not, in his judgment, needed. Despite this statement, I can not agree with him and I am very glad to read an editorial like yours, which brings attention to what I still consider a crying want.

In New York to-day, there is some foolish doing alongside of a great deal that is beneficial and praiseworthy in the management of sane criminals, but for the insane criminals there is a great dearth of doing, which I greatly deplore.

May I hope to awaken among those who have knowledge and power, the desire further to know and follow what is now being done at the State Psychopathic Institute, Illinois, under the supervision of Dr. S. H. Clark, physician to this hospital.

It would be well if everyone should obtain and carefully read Dr. Clark's report in connection with your admirable editorial. At least, it would be very desirable for all those who have power, willingness and initiative, to do immense good to a large number of great and neglected sufferers.

To the prominent specialists in neurology, to the psychiatrists and to the wardens of state hospitals for insane criminals, I specially send this most sincere appeal.

BEVERLEY ROBINSON, M.D.

AN AMERICAN MEDICAL STUDENT IN SCOTLAND.

(From Our Special Correspondent.)

EDINBURGH, October 18, 1915.

Mr. Editor: I have been in Edinburgh working in the laboratories for almost two months now. The fall term at the University and the Royal Colleges of Edinburgh has just begun and a remnant of the original student body has returned. At the college where girls are allowed to study medicine there is a record enrollment and report has it that an unprecedented number of girls have entered for medicine in London also.

At the university here the large proportion of medical students are East Indians and South Africans now. There is no medical course given in British South Africa. The result is that many come across the water, most of them to Edinburgh. Very few of either Indians or South Africans have enlisted. When war broke out the Scottish students who were, many of them, already members of the artillery, enlisted in great numbers. This fall many of the more advanced men, who went off as medical assistants on submarines or destroyers, have reappeared in order to finish their courses. Commissions are held open to them as there is a considerable shortage of qualified men in both the army and navy. In fact, the army just recently sent out a call for 2500 more doctors.

A student who is staying in the same lodging house with me went to Belgium at the beginning of the war under Doctor Soutar. Later, although he had never obtained his degree, he was placed on a cruiser and took charge of the medical work there, having two destroyers also under his supervision. Now that he has returned he will take his final examinations in December. The authorities seem quite willing that the men should push through as quickly as possible.

It is interesting to hear the returned students talking of their classmates. "Such-and-such a man is wounded, in a French hospital; his room-mate is reported among the missing. Another has been sent home from the Dardanelles, sick with dysentery. Many have come back for that reason." Judging from the stories of these men, life in the Dardanelles must be more terrible than in France. The troops are never out of range of the Turkish guns. The beach seems to be the most dangerous place of all. Wounded are carried out, as best they can be, to hospital ships. They get no bread, only hard-tack, for food, and water must be brought great distances by boat. Their turns in the trenches have been sometimes as long as three weeks. During the past summer the flies, fleas and heat have been awful, and lately dysentery has arrayed itself on the side of their enemies.

On the whole, Edinburgh is the most warlike city I have visited in Great Britain. The Scotsmen tell you with great pride that Scotland has outstripped England, Ireland and Wales in recruiting. From every signboard and vacant window Lord Kitchener's posters glare upon the men who have not yet gone, and appeal to them in a hundred different ways to come along with "the boys at the front." Any evening that one may walk along Prince's street he is sure to find a recruiting meeting and, if he is a young man, people turn around and give him the "why aren't you in khaki?" stare. One trolley car is set aside for recruiting. It passes along the different lines and extends a continual invitation to men to come aboard and enroll themselves with His Majesty's forces.

In the afternoons we often go out to play tennis and as we pass along the street with racquets and things, the little boys cry out after us—"shirkers! shirkers!" It makes even me, who am fortunate enough to be an American, feel very uncomfortable. I have almost grown used to being angrily stared at by women on the street cars. But it seems as though it would require more courage for a British subject to stay at home and face Scottish scorn than to enlist and face German artillery.

Conscription is a much debated topic. Most people with whom one talks favor it, but it seems doubtful now whether it will come for some time, if at all. The national registration slips are said to have been distributed to the various recruiting officers and it is expected that a thorough canvass of all men eligible for service will soon begin. But, notwithstanding the pressure of public sentiment, no city of Great Britain presents anything like the deserted appearance of a French city. In the Highlands of Scotland, I have been told, there are many small towns which have left to them not one able-bodied man. Conscription would, however, bring into the ranks very many men from the larger cities.

Sincerely yours,

W. G. R.

DRINKING WITH MEALS.

BOSTON, October 27, 1915.

Mr. Editor: The Massachusetts Anti-Tuberculosis League has been asked to prepare a legislative bill to prohibit saloon keepers from giving food to their patrons free of charge. Facts have been presented to us, showing the unclean condition of the utensils used on the food counter in the saloons and the probability that those eating food from these dishes are in danger of contracting tuberculosis. In talking this matter over with several physicians, the theory was advanced that it is much better for a person to take alcoholic beverages after eating than on an empty stomach. Connecticut, however, recently passed a law prohibiting the giving of free food to patrons of saloons. Will some of the medical readers of the JOURNAL be willing to send us their opinion in regard to this matter?

Yours very truly,

S. H. STONE, Secretary.

**PROGRAM. MENTAL HYGIENE CONFERENCE
AND EXHIBIT.**

Ford and Kingsley Halls, Ford Building, 15 Ashburton Place, Boston, Mass., November 17, 18, 19, 1915.

Wednesday evening, November 17, 8 p.m.

Presiding officer, William H. Burnham, Ph. D., Professor of pedagogy and school hygiene, Clark University, Worcester.

What Research Has Accomplished for Mental Hygiene.
Dr. Elmer E. Southard, Director, Psychopathic Hospital, Boston.

The Meaning of the Mental Hygiene Movement.

Dr. William A. White, Superintendent, Government Hospital for the Insane, Washington, D. C.

Thursday afternoon, November 18, 3 p.m.

Presiding officer, Mrs. George A. Perkins, President, Massachusetts Federation of Women's Clubs, Boston. Social Service in State Hospitals.

Miss Mary C. Jarrett, Chief of the Social Service, Psychopathic Hospital, Boston.

Community Value of State Hospital Out-Patient Departments.

Dr. John B. MacDonald, Assistant Superintendent, Dauvers State Hospital, Hathorne.

Occupation Therapy in State Hospitals.

Miss Emily L. Haines, Supervisor of Industries, Massachusetts State Board of Insanity.

What Shall be the Attitude of the Public Towards the Recovered Insane Patient?

Dr. Harry C. Solomon, Assistant Physician, Psychopathic Hospital, Boston.

After-Care of Mental Patients.

Dr. Henry P. Frost, Superintendent, Boston State Hospital, Dorchester Centre.

Thursday evening, November 18, 8 p.m.

Presiding officer, Dr. Allan J. McLaughlin, Massachusetts Commissioner of Health, Boston.

Preventable Forms of Mental Disease and How to Prevent Them.

Dr. E. Stauley Abbot, Pathologist, McLean Hospital, Waverley.

Rational Care of the Inebriate.

Dr. Irwin H. Neff, Superintendent, Norfolk State Hospital, Pondville.

What Recent Investigations Have Shown as to the Relation of Mental Disease and Crime.

Dr. A. Warren Stearns, Assistant to the Massachusetts State Board of Insanity, Boston.

The Relation of Alcohol to Mental Disease.

Dr. A. J. Rosanoff, Kings Park State Hospital, Kings Park, N. Y.

The Relation of Syphilis to Mental Diseases.

Dr. Samuel T. Orton, Pathologist, Pennsylvania Hospital, Philadelphia, Pa.

Friday Afternoon, November 19, 3 p.m. Annual Meeting of the Society.

Prof. William H. Burnham, President, Massachusetts Society for Mental Hygiene, presiding.

Dr. Charles E. Thompson, Secretary.

Report of the Secretary.

Report of the Treasurer.

Report of the Executive Secretary.

Symposium: Mental Diseases; Methods and Program.

Dr. Walter Channing, Brookline.

Dr. Everett Flood, Monson.

Dr. George W. Gay, Boston.

Dr. L. Vernon Briggs, Boston.

Dr. John A. Houston, Northampton.

Dr. Herbert E. Howard, Boston.

Mrs. William H. Lothrop, Brookline.

Dr. Ernest V. Scribner, Worcester.

Robert A. Woods, Boston.

Mrs. Ada E. Sheffield, Cambridge.

Dr. George T. Tuttle, Waltham.

Dr. Henry P. Walcott, Boston.

Election of Directors.

Terms expire 1915.

Hon. Henry V. Cunningham Mr. Seward W. Jones,
Henry Ehrlich, M.D. John M. Merriam, Esq.
Everett Flood, M.D. Bishop William Lawrence.
George W. Gay, M.D. Hon. Frank L. Randall.
Herbert J. Hall, M.D. Walter Channing, M.D.
John A. Houston, M.D. Hon. W. Murray Crane.
Vacancies.

Hon. Harvey H. Baker, deceased. Term expires, 1916.
J. E. A. Adams, M.D., deceased. Term expires, 1916.

Friday evening, November 19, 8 p.m.

Presiding officer, Dr. Franklin B. Dyer, Superintendent of Schools, Boston.

Mental Hygiene of Children.

William H. Burnham, Ph. D., Professor of Pedagogy and School Hygiene, Clark University, Worcester.

Mental Preparedness.

Dr. James J. Putnam, Professor Emeritus of Diseases of the Nervous System, Harvard University.

Heredity and Mental Disease.

Dr. Henry H. Goddard, Director, Vineland Training School, Vineland, N. J.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE FOUR WEEKS ENDING OCT. 23, 1915.

September 26, Surgeon W. M. Garton, from *Solace* to Fleet Surgeon, Atlantic Reserve Fleet.

Surgeon C. G. Smith, detached, Naval Hospital, New York, to Bureau of Medicine and Surgery, Navy Department, Washington, D. C.

Surgeon C. M. Oman, to Naval Hospital, New York. Surgeon P. A. Asserson, detached, Wisconsin to home, wait orders.

Surgeon E. M. Blackwell, detached, Bureau of Medicine and Surgery, Navy Department, to *Solace*. P. A. Surgeon W. J. Biddlek, from Naval Hospital, Norfolk, to *Nymphe*.

P. A. Surgeon P. E. Garrison, from *Solace* to *Washington*.

Surgeon W. D. Owens, from *Utah* to Training Station, Newport, R. I.

September 29, P. A. Surgeon A. E. Lee, Temporary duty, Navy Recruiting Station, Richmond, Va.

P. A. Surgeon G. R. W. French, from Naval Hospital, New York, to temporary duty at Navy Yard, New York.

Asst. Surgeon B. C. Willis, M.R.C., detached, Naval Recruiting Station, Richmond, Va.

September 30, P. A. Surgeon W. J. Zalesky, from Cavite Station, to *Saratoga*.

P. A. Surgeon, from Canacao Hospital, to *Wilmington*.

October 2, P. A. Surgeon W. L. Irvine, from Training Station, Newport, R. I., to *Chester*.

P. A. Surgeon H. L. Brown, from *Chester* to home, wait orders.

Asst. Surgeons, L. F. Drum, Paul Richmond, M.R.C., to Naval Medical School, Washington, D. C.

October 5, Asst. Surgeon S. D. Hart, from Newport Hospital to Newport Training Station.

October 12, P. A. Surgeon H. L. Smith, to Navy Yard, Boston, Mass.

P. A. Surgeon H. H. Ames, from Navy Yard, Boston, to *Georgia*.

October 12, P. A. Surgeon A. B. Clifford, from Naval Medical School, Washington, D. C., to U. S. S. *Washington*.

October 16, P. A. Surgeon G. D. Hale, from *Ohio* to *North Dakota*.

P. A. Surgeon F. H. Bowman, from *Ohio* to *Delaware*.

October 19, Surgeon F. E. McCullough, from San Francisco Training Station, to *Florida*.

Surgeon T. W. Richards, from *Florida* to *Maine*.

P. A. Surgeon G. W. O. Bunker, to Navy Yard, Portsmouth, N. H.

P. A. Surgeon G. E. Thomas from Navy Yard, Portsmouth, N. H., to *Utah*.

P. A. Surgeon L. W. McGuire, from *Maine* to *Rhode Island*.

October 20. Surgeon P. S. Rossiter, from *Colorado* to Training Station, San Francisco, Cal.

P. A. Surgeon R. I. Longebangh, to Navy Yard, Mare Island, Cal.

NOTICES.

CENSORS' MEETING OF NORFOLK SOUTH DISTRICT.—Meeting of the Censors of the Norfolk South District will be held at the office of the Secretary, 37 Holbrook avenue, South Braintree, Thursday, November 11, at 2 p.m.

Candidates for admission should bring their diplomas.

F. H. MERRIAM, M.D., *Secretary.*

The Fourth "Authors' Evening" of Ten Papers. "A Second Contribution to the Neurology of Childhood," by Walter B. Swift, M.D., and assistants; C. A. Osborne, M.D., Ph.D., second assistant; Miss Jennie Hedrick, voluntary assistant. At the Voice Clinic Psychopathic Hospital, 74 Fenwood Road, November 19, 1915, at 8 p.m. 1. The Signs and Symptoms of Stuttering. 2. The Physical and Mental Examination of Stutterers. 3. The Thymus as the Seat of Stuttering—Frowning. 4. Relation of Stammering to Right and Left-handedness. 5. Medical Aspects of Stuttering from the Teacher's Standpoint. 6. Incongruities in the Freudian Concept of Stuttering. 7. Five-Minute Summary of Spirometer Findings in Stutterers. 8. Further Psychological Steps in the Recovery of the Same Stutterer. 9. Psycho-physiological Analysis of Stuttering. 10. Locating the Speech Center by Hand Motions in Stutterers. First Note.

Physicians and medical students are invited.

Kindly drop a postal if you expect to attend to 110 Bay State Road, Boston, Mass.

SOCIETY NOTICES.

MASSACHUSETTS STATE NURSES' ASSOCIATION.—The autumn meeting of the Massachusetts State Nurses' Association will be held at Hotel Brunswick, Boston, Saturday, Nov. 13, 1915, at 3:00 p.m.

Address, Miss Anne W. Goodrich, R.N., asst. professor, dept. of nursing and health, Teachers College, New York City. Subject: "The Value of State Registration and Inspection of Training Schools."

Discussion.

THE MASSACHUSETTS LEAGUE OF NURSING EDUCATION will meet at the Central Directory, 636 Beacon St., Boston, at 11:00 a.m., the same day.

SARA E. PARSONS, *President.*
CHARLOTTE W. DANA, *Cor. Sec.*
24 McLean St., Boston, Mass.

NEW ENGLAND SOCIETY OF DERMATOLOGY AND SYPHILIS.—The next meeting will be held at the Boston City Hospital on Thursday afternoon, Nov. 18, at 3:30 p.m. Those interested are cordially invited to attend.

CHARLES J. WHITI, M.D., *Secretary.*

APPOINTMENTS.

UNIVERSITY OF PENNSYLVANIA. Dr. William G. Spiller has been appointed professor of neurology to succeed Dr. Charles K. Mills, who has become professor emeritus.

UNIVERSITY OF CINCINNATI. Dr. Edward F. Malone has been appointed associate professor of anatomy and Dr. John C. Donaldson instructor in anatomy.

CORNELL UNIVERSITY. Dr. Charles B. Merrill has been appointed instructor and Dr. Robert Chambers assistant in anatomy.

ALBANY MEDICAL COLLEGE. Dr. Wesley M. Baldwin has been appointed professor of anatomy.

RECENT DEATHS.

DR. EDWARD P. COLBY, who died recently in Boston, was born at Cincinnati on March 4, 1839. After obtaining his preparatory education at Claremont Academy, New Hampshire, he received the degree of M.D. in 1861 from the Long Island Hospital Medical College. He served throughout the Civil War as assistant surgeon in the United States Navy. Subsequently he settled in the practice of medicine at Wakefield, Mass., but removed to Boston in 1890, where he became professor of nervous diseases at the Boston University Medical School. He was consulting neurologist of the Massachusetts Homeopathic Hospital, the Westborough Insane Hospital and the Clinton Memorial Hospital. He was a member of the American Institute of Homeopathy, the National Society of Electro-therapeutics, the Massachusetts Homeopathic Medical Society, the Massachusetts Surgical and Gynecological Society and the Boston Homeopathic Medical Society.

DR. FRANK HERBERT DANIELS, a graduate of Harvard College in the class of 1879 and of the Harvard Medical School in 1884, died at his home in New York City, October 30, 1915. He was born in Charlestown, Mass., September 1, 1856, joined the Massachusetts Medical Society soon after graduating from the Medical School, and moved to New York the following year. There he had practiced since, being at one time physician to Manhattan Hospital and curator of Randall's Island Hospital.

DR. EDWARD E. FROST, who died on October 31, at Worcester, Mass., was born at Vernon, Vt., in 1850. He removed to Worcester in 1869 and after studying for a time in a dental office there, he entered the Harvard Dental School from which he graduated in 1875. After practicing his profession for a time at Worcester, he retired in 1880. He is survived by two daughters and three sons.

DR. JOHN HENRY HUDDLESTON, who died of pneumonia on October 30, in New York City, was born in Boston on July 11, 1864. He received the degree of A.B. from Harvard in 1886, that of A.M. in 1887 and that of M.D. in 1891. Since 1892 he had practiced his profession in New York. He was a member of the American Climatological Society, the American Public Health Association, the National Association for the Study and Prevention of Tuberculosis and a trustee of the New York Academy of Medicine. He was Carpenter lecturer at the Academy in 1902; and in 1903 was secretary of the American Committee for the fourteenth International Medical Congress at Madrid.

DR. EDWARD OSGOOD RICHARDS, who died on October 29 at Salem, Mass., was born in that city on January 8, 1856. After graduating from the Boston Dental College, he settled in the practice of his profession at Salem. He is survived by his widow, one daughter and one son.

DR. WILLIAM H. SCOTT, who died recently at Brookline, Mass., was born in 1832. He received the degree of M.D. from the Berkshire Medical College, and at the time of his retirement had practiced his profession for fifty years.

DR. WILLARD KNOWLTON DYER, who died on Oct. 18, in Boston, was born at that city in 1851. He obtained his medical education at the Harvard Medical School and had made a special study of diet in renal and diabetic disease. He is survived by one daughter.

DR. HERBERT E. KNOWLTON, who died on Oct. 24 in San Diego, Cal., was born at Belfast, Maine, in 1867. He received the degree of M.D. in 1891 from the Harvard Medical School and for twenty years subsequently practised his profession in Cambridge, Mass. Since his retirement in 1911 he had lived in California. He was a non-resident member of The Massachusetts Medical Society. He is survived by his widow.

The Boston Medical and Surgical Journal

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Address.

THE MIDWIFE PROBLEM.*

BY A. K. PAINE, M.D., F.A.C.S., BOSTON.

To a certain extent the title of this paper is a misnomer inasmuch as the midwife represents but a part of the general obstetric situation with which we have to deal. An attempt to confine oneself to a single aspect of this great problem is not to deal broadly with the subject presented, but the midwife, representing as she does one of the weaker links in the chain which supports this important part of our social fabric, becomes the object of our most marked attention.

In this community the general trend of thought is to ignore the possibility of benefit to be secured from the continuation of that ancient institution, the midwife. This attitude is generally carried to the point that the average man in his medical upbringing is imbued with the idea that the midwife merits none and has no defence. At least this was my personal experience and it was only gradually borne to me by the wealth of literature on the subject continually appearing in our journals, that our method of easy disposal of the midwife problem, was not apparent to the country at large. It was evident from the number and conflicting na-

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ture of the articles in question that the last word on the subject had not been said, and it was also apparent, did one stop to consider, that the midwife played a considerable part in the practice of obstetrics in Europe.

With this in mind, and a considerable interest in the obstetric situation as it exists, an attempt to secure more information on the subject was begun with the object of formulating an opinion which would be in keeping with the facts. Proceeding with this as the object, a rather extensive communication was carried on with various people interested in the subject throughout the United States. This included the leaders in the practice of obstetrics, officials whose work brought them in contact with obstetric problems, boards of registration in medicine, boards of health and various local organizations.

Briefly, the communications were requests for information and opinions regarding the obstetric situation generally and the midwife in particular with such facts as would aid in a study of the matter. I would take this opportunity to express my great appreciation of the kindness and courtesy with which my requests were received on every hand, and my great obligation for the many and extended communications from the various people mentioned. The replies could be easily catalogued as statistics of the opinions and facts regarding the whole subject of midwifery in its present status, but it would perhaps be more interesting to outline briefly the impressions to be gathered from this wealth of material.

* Read before the Chirurgical Society of Boston, April 23, 1915.

The striking feature of it all was what might be described as the uncertainty of the medical profession generally regarding the whole subject. It was usually apparent that the minds of many were in doubt as to the best and final solution of the obstetric problems which are so evident. Further the replies embodied two general possibilities. The first might be described as the ideal solution of the care of the parturient woman. This ideal is, that every such woman is entitled to all the benefits to be derived from care by a trained obstetrician, that such ably trained obstetricians should be in every community in sufficient numbers to care for all maternity cases and that by the high character of their work they would automatically suspend the activities of poorly trained physicians, midwives and every other agency which did not maintain this high degree of obstetric skill. The first premise—that every pregnant woman is entitled to the best that science can secure—needs no comment. The remainder of the idealistic program immediately raises a myriad questions, all of which resolve themselves into one of practicability, and therefrom has developed the second group of ideas which might be described as the practical method of dealing with the subject, and I am constrained to say, that the practical methods almost invariably include the trained midwife as a part of their procedure.

With but one or two exceptions, the opinions all agree that the midwife, as she exists at present in the United States, represents an institution intolerably below the standards which should be legitimately demanded. Perplexity as to the solution was the keynote of all these communications. The tendency, however, was toward the training and supervision of the midwife, and various steps, as you know, have been taken here and there with an idea of bringing about this regulation. In some places the midwife is legally ignored. In others, she is licensed to carry on her work, but without particular supervision. In still other states, some attempts at supervision are made, with some inquiry into the qualifications of the practitioners of this art. In others attempts have been made to secure these qualifications as well as to regulate the practice. New York, Pennsylvania, Maryland and Illinois may be cited as examples of states taking the most advanced stand in the matter of securing properly trained midwives.

Another opinion almost universally expressed concerned the unsatisfactory state of obstetric teaching and training in the medical schools. Dr. Moran of Washington expresses the general idea on the subject when he says, "In my judgment the medical curriculum needs to be materially changed. Surgery is today made the intensive course to the disadvantage of general medicine and obstetrics which are certainly of more vital importance to the recent graduate. The interne as a rule, is so enamored of the knife that he gives scant attention to the test but a

tube, stethoscope and microscope. Obstetrics should be made the intensive course of the curriculum and I am constrained to believe that major surgery should be restricted to post graduate work. Much of the time now spent in the amphitheatre could be more profitably devoted to study and experience in the general practice and obstetrical wards."

In closing this very brief résumé of the opinions gathered from these communications, it is fitting to add that Boston represents the stronghold of what might be described as the antimidwife attitude. It should also be added that throughout the country the condemnation expressed was not only of the midwife as she at present generally exists, but also of obstetrics as it is practiced by many physicians. Dr. Williams of Baltimore sums the situation up quite definitely when he says, "In regard to the midwife problem, we are in a very difficult position, as in my experience the average doctor who treats the poor, and sometimes the rich as well, does quite as much harm as the ignorant midwife. Consequently, I do not think that we are justified in trying to abolish her until we can put our own house in order. I therefore feel, that the first thing for doctors to do who are interested in the subject is to see that steps are taken to bring about proper obstetrical teaching in our medical schools and the foundation of institutions where that subject will be taught as a science rather than as a mere art. As long as students are taught that obstetrics consists merely in the delivery of women so long will it remain a discredited branch of medicine. After we have brought about these changes and are prepared to offer properly supervised outpatient care to the poor, then we should take up the question of abolishing the midwife."

On the other hand, a large number of the leaders of the medical profession headed by Dr. Jacobi and Dr. Edgar of New York, take another view and feel that the proper and practical solution of the whole problem is to be secured through the medium of the properly trained and supervised midwife in conjunction with the general better training of those physicians who practice obstetrics.

From the wealth of facts and opinions secured in the pursuit of this study, various deductions may be drawn. Obstetrics as a branch of medicine has been highly developed and is on a par with the rest of that science, but as such is practiced by the very few. As practiced by the rank and file of physicians it occupies a considerably lower plane than does the general practice of medicine and surgery, and as pursued by the few, represents a very low type of medical service. Why is this so? The practice of medicine as a whole is carried on by individuals as a private undertaking, unfortunately, but nevertheless truly, representing not only a devotion to an ideal

to obstetrics discloses a very unpleasant truth. The time necessary to care properly for an obstetric case, according to present-day standards, cannot be given for the small financial return that the great majority of people can afford or expect to pay for such service, and the result is that this class of work is done because of its entering into general practice in spite of the inadequate return, or, worse, is poorly done by an inadequately equipped attendant for the inadequate fee, this latter including the midwife as she at present generally exists in this country.

This state of affairs has borne itself upon the public mind to a certain extent with the results that various private and institutional attempts to deal with the problem are evident. Nor must we neglect the part played by the institutions for medical training which in serving their own ends have also supplied a portion of various communities with excellent obstetric treatment.

It would, perhaps, be natural to inquire why this chaotic state exists as regards the practice of obstetrics, when, comparatively speaking, surgery as a whole, of which obstetrics is a branch, is standardized in a measure at least. The unpleasant statement was made that poor obstetrics seems to bear some relation to an inadequate financial return. Why is the return inadequate? Everyone has observed the rather anomalous situation of a family paying a very considerable sum easily and without apparent reluctance for some surgical operation, when the same family expects to pay for attendance during pregnancy and confinement the most meagre fee.

To understand this peculiar state of affairs we may perhaps with advantage consider what might be stated as the psychology of medicine. The science of medicine occupies in the eyes of the public at large an anomalous position. It is not regarded as an immutable science, but as a mixture of science, pseudo-science, and in part as a belief. We may even see the belief predominate to the exclusion of all else, and like that great example of belief, religion, it is found in many guises and forms. The average person by nature is more or less a practitioner of healing, with many ideas and convictions deeply rooted. In one of these deeply rooted convictions we are particularly interested as we discuss the subject of obstetrics. This is the idea which is held by the community at large, that the giving birth to a child is a manifestation of nature pure and simple. And nature in this, at least, is considered practically, if not entirely, self-sufficient. Nature requiring but a minimum of assistance to complete her work in her obstetric undertakings, obviously such a minimum of assistance should merit but a minimum of regard with the little that that entails. This minimum assistance has been rendered from time immemorial and in it we can see the obvious development of the midwife.

It is hardly necessary to indulge in a description of the transition from the earlier attempts at assisting nature, to the trained midwife as she at present exists in Germany, for instance. The midwife as an untrained practitioner of this art merits the condemnation that she has rightly received on all sides, but the midwife as an institution developed in some parts of Europe represents an attempt to solve a great problem, the culmination of much thought and study, and the whole representing conclusions we cannot lightly disregard. It is generally conceded that in Germany the most advanced steps have been made in the perfection of the community life. The nature of the government is such that should a certain procedure in the light of careful investigation seem desirable, that procedure can be put in force without such difficulties attending establishment of new civic regulations and procedures as would be witnessed in this country, for instance. Should it be decided after extensive investigation in Germany, that the midwife could with advantage be supplanted by any other agency, that supplanting could, and apparently would, be done.

The lesson we may learn from the method of dealing with the problem is not that the midwife institution represents perfection, but rather that it is the most practical means available. Attempting to apply the experience of other countries to this, we are confronted first with the necessity of public education which must precede all progressive legislation or regulation and which might obviously become a difficult matter. In the light of our experience in securing beneficent legislation concerning the public health, witness, for instance, the difficulties surrounding an attempt to secure such a desirable enactment as would ensure clean milk. In other words, it is questionable whether our community life would lend itself to the proper regulation of a work of this kind, in part because here an idea of central authority has not been developed to the point where community efficiency supplants individual efficiency.

There was one theme which pervaded all the writings and communications I was privileged to see, a theme often submerged, but always recurring and that theme was, that the midwife was "practicing medicine without being a physician." It has occurred to me that much of the adverse attitude of the medical profession to the properly trained midwife has unconsciously developed from this idea, and the question arises, if this work were carried on by trained nurses under the supervision of competent obstetricians, would not a different attitude toward the whole matter develop? This is not offered as a suggestion but rather as a possible explanation of some of the distrust with which the whole subject is viewed, and this without attempting to mitigate the part played in the production of

this distrust by the appearance on all sides of women practicing the art of midwifery with but the slightest, if any, qualifications to carry on that work. Nor should we ignore the fact that not even in Germany, where the development of the system and its regulations are carried out with regard to the minutest detail, which characterizes the German mind, is the system entirely above reproach in the eyes of those most interested and qualified to judge. Its continuance is partly the result of long established custom and partly because no better method has apparently been devised which is practical of application.

Emmons and Huntington, in an article discussing the subject, described workings of the German system and, as the result of their own observations, condemn it strongly. In the course of the article they quote from the *Journal of the A. M. A.*, which states that "the midwife is not so well regulated in this country as in Europe, but the harm done is probably less, since the midwives are not so numerous," which might seem to offer in several respects an opportunity for considerable argument, a statement which is based apparently on an opinion rather than on available demonstrated facts.

Leaving the general aspects of the question temporarily, let us briefly review the situation as it exists in our own community where we personally are most concerned. Boston's position as a leader in the advancement of the science of medicine is sufficiently well recognized to need no description. The work for the betterment of the general practice of medicine includes as well that branch devoted to the practice of obstetrics. The individual application of the knowledge and skill as exhibited by the leaders in this subject is of the highest order and merit. The teaching of obstetrics here is as complete as anywhere in the country, though that is saying but little, and yet the practical application of this comparative excellence to the whole community is conspicuously lacking. That every woman confined in Boston does not receive all the benefits available from high-grade obstetric care is due not to the absence of high obstetric ideals, but rather to the incomplete organization or machinery to supply that high-grade service to everyone.

The presence of medical schools increases materially the total number of obstetric cases that are properly cared for, which is a distinct advance Boston has over communities not supporting such schools, but even in Boston, the work done is not sufficient in volume to care for all the cases deserving of such care. It is to be noted also that the private charitable organizations doing the bulk of obstetric work among the needy, carry on that work as a part of the teaching propaganda of medicine. Without the medical schools, the number of cases receiving proper care during pregnancy would be re-

duced very materially, as must be obvious to anyone who would stop to consider.

In 1913 approximately 20,000 births occurred in Boston proper, not including the miscarriages which necessitate a material addition to the amount of work necessary to care properly for this class of patients. Statistics compiled by Emmons indicate that some 4,500 cases were attended in or by the various institutions doing obstetric work. A striking feature of this being that practically all of this institutional work was carried on by private organizations, while at least three-fourths of the cases were conducted as a part of the teaching of medicine. And, further, that of all the cases attended, less than 100 were cared for in municipal institutions. The city has practically left the whole care of its maternity cases to private organizations and physicians. Of the other 15,500 cases delivered in Boston, how many were cared for by private physicians for a return so small as to make it impossible to devote the attention necessary to the proper conduct of these cases? How many were delivered by physicians not competent to furnish high-grade obstetric service? How many cases were delivered by midwives, and what of the character of the midwives doing this work?

From time to time we receive from the schools of the continent well trained midwives. A part of their training includes the imbuing of a wholesome respect for the law. Finding that the law prohibits their practicing in Massachusetts, a considerable portion of these better class midwives refrain from attempting to practice. Those who do, represent a type without respect for legal or medical promulgations. The attempts in Boston to convict midwives of the illegal practice of medicine are interesting as a commentary on the peculiar status of the law bearing on the subject. In the last few years two convictions have resulted, but in both of these cases, while the practice of midwifery was the cause of attention of the authorities, the convictions were for a violation of the statutes in other respects than in practicing obstetrics without a license.

The attitude of the medical community toward the whole subject is not one characterized by a definite and comprehensive plan to deal with the problem, but seemingly favors continuance as at present until the idealistic state already mentioned is secured, until every one of the 20,000 or more cases per year receives the high grade obstetric attention correctly assumed to be their righteous due. Just how this is to be brought about, however, is not entirely discernable. The general scope of the plan seems to include more trained obstetricians, more dispensaries devoted to this work, and the elaboration of some such scheme as has been tried in Manchester, N.H., where various physicians have devoted a considerable time to the care of obstetric cases as a part of the work of a charitable organization.

The requirements of the situation demand a broad and comprehensive organization which can carry on a large amount of work, supplying good service on a large scale. The possibilities as have been indicated are: first, the trained midwife organization, the method adopted generally abroad as the not entirely satisfactory but most practical solution of the problem; second, the training in large numbers of obstetricians to carry on the work as individuals. Without discussing this factor at any length, it is interesting to consider a few possibilities. What does "the properly trained obstetrician" mean? It means the same as a properly trained surgeon about which we are hearing so much. It means seven or eight years in preparation with all that that implies. And is this extensive preparation for competition with the midwife in her special field?

The plea for better obstetric teaching in the medical school represents another method of attacking the problem of poor obstetrics and that it should result in a marked uplift is obvious. Unless the improved training is carried practically to the point that a skilled obstetrician results, may we not see an increase in what has been described as "meddlesome midwifery?"

The first and striking thing which impresses us is the lack of consideration given the subject by the community as a whole. What has been done for the sick poor generally? The many public institutions for their care, aided by numerous charitable organizations, attest that this branch of social service, at least, is rescued from obvious neglect. It is a commentary on conditions that exist that practically no provision is made by the city to care for its maternity cases. Should a human derelict, in vain search for amelioration of his misery, accept the frequent and easy opportunity to indulge in alcoholic relief and thereby meet with an accident he would be the recipient of services by an organization, which would furnish not only the physical means but the skill to treat his injuries in a manner which would compare more than favorably with those of an individual having unlimited wealth at his command. The care and treatment of such a case entails a very considerable expense, which is willingly met by the city. In contrast to this consider the plight of a poor woman about to give birth to a child, whose care and attention depends on the possible charity of some private individual or organization, or worse, the ministration of a midwife, working without the pale of the law.

The problem is primarily an economic one, and as such, if not for humanitarian reasons, demands that the parturient receives throughout the course of pregnancy and confinement, the very best care that the community can provide. It must be apparent to anyone who considers the matter, that the present method, or lack of it, is inadequate to deal comprehensively with the situation, and that a radical and far-

seeing policy for the ultimate development of a method of properly conducting this part of our community existence is imperative. In the author's opinion there are but two possibilities for such a comprehensive plan. First, the establishment of a midwife organization similar to that in operation in other countries; or second, the adoption of this problem by the city as one in which its vital interests demand its official participation. In other words, that the city should adopt the care of its maternity cases in the same way that it adopts the care of the needy when they are ill or infirm for any reason. Why should not a city the size of Boston have an organization devoted to the care of obstetric cases, which are unable to secure for themselves proper obstetric treatment? Communities too small to support such an organization should pay for the proper care of obstetric cases, as is already done in many places. The striking difference between the conduct of such a municipal lying-in hospital and the other municipal organizations should be the realization that the treatment of these cases is not primarily the treatment of paupers, but rather an appreciation of the fact that the state demands that every obstetric case receives through its whole course, the care that the importance of such a case demands. The taking of such a step by this and other communities would of itself tend to solve the so-called midwife problem, which is but part of the problem of poor obstetrics, and bring about that which all seek, the fact that every parturient woman receives the attention commensurate with present-day obstetric standards. This solution of a vital problem is advanced as a practical method of dealing with a situation which cannot be allowed to continue without the development of some method to secure its amelioration.

CONCLUSIONS.

From this study of the various facts and opinions presented, the following conclusions might be reasonably drawn:—

1. Education in obstetrics in the various medical institutions in this country is considerably below the standards achieved in other branches of medicine.
2. The practice of obstetrics generally is very materially below the standards of general medicine and surgery, due first, to the educational deficiency in this subject; second, to a low type of midwife service, the result of a practical absence of regulation; and third, due to the fact that the general attitude of the public at large toward the practice of obstetrics is not in keeping with the dignity of that subject.
3. That no comprehensive and far-seeing plan is generally being developed to cope with the situation as it presents itself.
4. That there is a distinct tendency in many quarters to adopt the midwife as an institution.

after the manner of its conduct in the countries of Europe.

5. That while the whole subject of the proper obstetric care of patients needing this service is one of great economic importance to the state, there is practically no attempt at meeting this situation by the state.

6. That it would seem that our method of government is not adapted to the rigid requirements which the properly regulated midwife demands.

7. That the state should assume the management and control of this work, which is of the greatest economic importance, as readily and as well as it assumes the burden of caring for such of its citizens as are incapacitated by ill health or age.

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THE PREGNANCY CLINIC AND THE MIDWIFE: A COMPARISON.

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FROM some where, every once in so often, comes the plea for recognition of the midwife. Let us see why this is made in Massachusetts. In the first place we have a number of midwives, probably less than two hundred in the entire State, in active practice, but unrecognized, unregulated, and unprosecuted—for they are all defying the statutes of our Commonwealth. These women and the class of legal practitioners of medicine with whom they are closely associated are in the main responsible for this indefinite agitation.

Another group of agitators are those physicians who see all about them the results of bad obstetrics. They either feel that the midwife, as she exists today, is responsible for a large part of this state of affairs, and therefore she should be educated since she has not been suppressed; or else they feel that as the poor practitioner is responsible for most of this bad work it would be advisable to adopt the European trained midwife, feeling that any change must be for the better. Others urge this change because they feel that the immigrant will always cling to the midwife; they fail to understand the requirements of modern obstetrics, and believe that it is possible to educate these midwives so that they can give proper care to these immigrant women.

Now this present situation in Massachusetts is very far from being ideal. But the solution by changing the laws and recognizing the midwife is certain to make for a worse obstetrical situation rather than a better.

In the first place the responsibility for the brand of obstetrics practised so generally in Massachusetts today rests on the shoulders of the untrained and improperly trained practitioners. These outnumber the midwives ten to one, and they know little, if any, more about obstetrics than do the midwives with whom they are in competition. The medical schools which prepare these practitioners are also responsible for the conditions as they exist today; for they

allowed these physicians to enter practice without adequate training but with the idea that operative obstetrics is child's play, whereas operative surgery requires post-graduate training.

The standards required for admission to practice medicine in Massachusetts have been so low that many men of inadequate training have come to our State as a haven of refuge. Obstetrics is admittedly the poorest taught subject in the medical schools of America today. The result is that these physicians know practically nothing about obstetrics. Yet they have been educated out of the healthy dread of meddling which the untrained midwife possesses.

We see the background of obstetrical practice in the State. Let us for a moment see how this proposed change would work out. What is to become of the midwives in practice today? Are they to be allowed to practice without any more education than they now possess?

Of course when education of the midwife is suggested, one means training in a lying-in hospital or out-patient dispensary, so arranged that the midwife shall be fitted to take the responsibility of the case. Merely giving an ignorant woman an opportunity to observe for a few months the conduct of normal labor, and assist in the after-care, is not education but only the familiarity that breeds contempt.

At the present time there are not enough obstetrical opportunities in the hospitals of Boston, our only medical school center, for the proper education of all our medical students in residence. Thus we see that the midwives would have to be educated outside of Boston or else their education would be at the expense of the future medical practitioners. But outside of Boston there are few, if any, lying-in hospitals properly equipped and doing a sufficient amount of work to undertake this new departure. It means, therefore, the establishment of new schools. How are you going to raise money to build and equip these schools? How are you going to get pupils to fill them? Supposing you could force the graduates of the famous European schools for midwives to enter these schools, would they profit by the training? A large proportion of the women practicing as midwives in Massachusetts have this training—over 36% in 1912,—also these trained women have the largest practice as a rule. Thus we see that we should have many problems to solve before we can educate the midwife in Massachusetts.

It would not be a difficult problem to establish the machinery for licensing the midwife. She would have to appear in person at the State House and pass an examination and pay a registration fee, that would be all; but how would it be possible to prevent the unlicensed midwives from practicing? We see how futile the law is at present; all the women practicing as midwives are breaking the law now, yet very few are prosecuted annually. Would more be prosecuted if some midwives were licensed and only a

few were violating the law? When we have seen the numerous violations of the law governing the practice of medicine in Massachusetts and the indifference with which these violations were met, it is hard to believe that the license to practice as a midwife would be worth very much. Law that is not backed by public sentiment is futile; public sentiment in Massachusetts is absolutely indifferent as to whether midwives practice or not or whether they are or are not licensed.

But supposing the machinery for the proper education of the midwife is established and public sentiment is aroused to enforce the midwife laws, is it going to be an easy thing to regulate the midwife in her practice? Proper regulation means supervision by trained physicians and nurses. This would be expensive and could not exist without the loyal support of the police department.

After a few arrests and convictions the system would probably work as well as the midwife system does in England or in Germany, certainly no better, provided the medical education of the midwives and of the physicians on whom they would be compelled to call for help, were up to the European standard. In other words, the midwife system depends finally on the efficiency of the medical profession, for the midwife must keep in constant touch with a physician in all her abnormal cases.

Now by developing a midwife system a dual standard is established in obstetrics. Unlike all other branches of medicine, there would be two classes of practitioners,—one to care for the normal uncomplicated case among the poor, the other to care for normal cases except among the poor, and for abnormal cases wherever they occur. This seems hardly a fair division of service at best. Is there no other alternative?

We are told right along that the immigrant cannot be weaned from the midwife, and that is the strongest argument given by those in favor of the midwife and her education and regulation. That she not only can be, but has been, weaned from the midwife can be seen by the casual observer who will spend a morning in the Pregnancy Clinic of the Boston Lying-in Hospital. Every day Russians and Italians are flocking to us for care. No one possessed of any knowledge of the essentials for the proper care of pregnancy, labor and the puerperium would pretend that midwives, no matter how well trained they are, could give the care these patients are receiving.

The Boston Lying-in Hospital was the first to establish a real Pregnancy Clinic in Boston in connection with its other work, and has today by far the largest Pregnancy Clinic in New England. It was started in 1911 and now there are at least three other similar clinics in Boston, besides others in smaller cities, all working along the same lines.

Let us now glance at the care given as routine and the results obtained last year.

All patients are urged to come as early in their pregnancy as it is possible, and every year more patients are coming to us before the fifth month, many for the diagnosis of pregnancy. A careful history is taken, and the details of the proper hygiene of pregnancy are explained. Every patient has a complete physical examination at the first visit, including a Wassermann test (this test is carried out at the State Board of Health Laboratory), an examination of the urine, and a determination of the blood pressure. Every patient is required to return for examination at the end of four weeks or sooner if any symptoms arise. Should any abnormality be noted the patient is told to return promptly, the exact day being specified, to see how treatment is affecting the condition or to establish more definitely the line of subsequent treatment of the case. Should any grave complications be noted, the patient is referred to the Hospital for treatment in the wards. All cases where the pelvis is so contracted as to offer any question as to the outcome of the labor, are referred to the Hospital for examination by the visiting physician.

All patients making their subsequent visits are carefully questioned as to how they are following out the rules for the hygiene of pregnancy, their blood pressure is taken and their urine is examined. Many of our patients who are to be delivered in the Hospital are visited in their own homes by our Pregnancy Clinic nurse, who goes over carefully all the points touched upon in the Clinic and does what she can for the comfort and welfare of the patient. Patients who are to be confined in their own homes are similarly visited by the nurses from the District Nursing Association. These visits are made about every ten days or oftener if necessary.

Of course, most of our House patients make some return to the Hospital for the treatment they receive. Our out-patients do not, being merely allowed to make a voluntary contribution to the support of the Hospital. These voluntary contributions, averaging about 76 cents per patient, brought in over \$1500 last year.

The results obtained in the Pregnancy Clinic of the Boston Lying-in Hospital last year are as follows:

NEW APPLICANTS FOR TREATMENT.

Referred from the hospital.....	526
Referred from the out-patient department.....	1259
Referred for consultation from other institutions	14
Subsequent visits.....	2727
First visits of babies.....	20
Subsequent visits.....	16
Total number of visits.....	4562
Total number of new patients.....	1799
Remaining under observation from previous year	268
	2067

Subsequently delivered in the hospital.....	432
Subsequently delivered in the out-patient department	1055
Not pregnant.....	16
Removed from district.....	11
Discharged to private physicians.....	12
Ceased attendance or otherwise provided for.....	219
Consultations from other institutions.....	14
Died undelivered.....	2
Remaining under observation.....	306

Of the 2067 women under the care of the Pregnancy Clinic during the year 1914, 592 presented the following complications of pregnancy:

Contracted pelvis of varying degrees.....	228
Albuminuria without other signs of toxemia.....	137
Definite symptoms of toxemia.....	72
Elevated blood pressure without other signs of toxemia	47
Heart lesions.....	41
Ante-partum bleeding.....	17
Miscarriage	5
Acute hydramnios.....	6
Pycitis	6
Phthisis	4
Syphilis	4
Gonorrhea	3
Hemorrhoids (giving acute symptoms)	3
Diabetes	2
Flat foot (acute).....	2
Congenital malformation of the rectum.....	1
Cyst of mammary gland.....	1
Epilepsy	1
Exophthalmic goitre	1
Fibroid uterus	1
Mastitis	1
Ovarian cyst	1
Peritonitisilar abscess	1
Phlebitis	1
Placenta praevia	1
Pruritus vulvae	1
Purpura	1
Scarlet fever	1

592

Of the 1487 women from the Pregnancy Clinic delivered in the Hospital or in the Out-patient Department there were

Discharged well	1418
Discharged to private physicians.....	8
Discharged to other institutions.....	3
Discharged dead	6
Remaining under care	52

1487

The work of such an institution is educational. We educate the community to appreciate the value of good obstetric care; we teach our patients how to obtain this care and our students how to provide it.

We feel confident that this is the solution of the obstetrical problem in Massachusetts, offering far better results than could the midwife, no matter how well trained and regulated. By the increase in the number of such institutions we are encouraged to believe that the midwife will gradually disappear, being superseded by the modern obstetrical dispensary.

CLINICAL RECORDS IN RELATION TO TEACHING AND RESEARCH—A PLAN TO PROMOTE CONSERVATION AND UTILIZATION OF MATERIAL.*

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In connection with the reorganization of the University of California Hospital in 1912, one of the important problems presenting itself was that of hospital records. To the teacher and research worker especially, very few details connected with the running of a university hospital equal in importance the clinical record system. From the economic standpoint alone, it is clear that for this type of hospital where the cost per bed per day is unusually high, a system which makes possible the greatest utilization of past material as well as present has a high value; and if considered solely as an investment, it would more than justify the small extra expense required. It is the duty of all hospitals, however, and especially university hospitals, to take a broader view of economy than the immediate saving of dollars and cents. The ultimate benefiting of the race, the lessening of disease and its more efficient alleviation through medical research are justly coming to be regarded as the most profitable type of benevolent investment. And the charitable hospital that neglects opportunities to advance medical science is like the manufacturer who throws away valuable by-products. That the great majority of American hospitals are following such a short sighted policy of neglect is truer, I believe, than is generally appreciated. Not only is the proper kind of research on current cases too seldom undertaken; but, for want of sufficiently accurate, complete and accessible data, a vast amount of useful material is constantly thrown beyond the reach of those in the future who would utilize it.

It was such considerations which prompted and, we believe, more than justified our small increases in time and money expenditure for developing the hospital record system. The university was fortunate at the outset in adopting the general plan of records followed at the Massachusetts General Hospital, and later in securing for the custodianship of the records Miss Genevieve Clark, who received her training under Mrs. Grace W. Meyers. The details of this system have been ably presented before this association by Myers,¹ Hollings² and Howland³; and here it will be necessary only to reemphasize the following points: (1) The necessity for adequate administrative machinery to insure getting uniform and correct data in regard to patients

names, addresses, etc.⁴ (2) Permanency of the records. Only good rag paper⁵ and non-fading ink should be allowed.⁶ By all means the records should be substantially bound and kept in a dry, fire-proof place. (3) Economy in paper, binding, and fire-proof storage as well as convenience in handling will result from using both sides of the paper and limiting the number of extra laboratory sheets, etc.

COMPLETENESS AND ACCURACY OF CLINICAL RECORDS.

The hope of having anything but haphazard and fragmentary clinical records should be abandoned by any institution whose visiting staff will not give time and energy to the undertaking. An essential element is standardization of the general form of records and method of filing; and to this end by far the most business-like and effective plan is to give over the direction of the record system to some one member of the staff who has the requisite insight and abundant interest in the undertaking and patience to carry it out. He will encounter a large number of details, and for a long time will have to educate other members of the staff as well as internes and nurses. Such an educative campaign is helped by frequent reports sent to the staff indicating for each service such items as: Number of operations or autopsies performed before the clinical diagnoses were recorded, number of records turned in with no blood pressure reports, etc., etc.

An unusual advantage is enjoyed by university hospitals in being able to train interns for two or three years before they begin their service. In the University of California a few weeks after the second-year medical students begin the course in physical diagnosis and history taking, they are given an outline of history and physical examination records, which they follow from then on in reporting their cases, and which is prescribed for the use of interns. The exact form of this outline is not so important as it is to have uniformity in the general arrangement, which lessens the number of important facts overlooked in the writing and greatly facilitates later endeavors to hunt up statements that are wanted. Much stress is laid upon history taking, and students are given a good deal of practice in it; the aim in teaching being first for accuracy and completeness and second for conciseness and the elimination of irrelevant matter. Hospital interns are chosen from among students who are known to write acceptable clinical records. We are opposed to the idea of allowing student histories to go into the hospital records, on the ground that the high value of these records merits for them the best help available.

One common defect of clinical records is that they do not make clear to the one who reads them several years later the exact nature of various procedures mentioned, e.g. the deter-

* Presented before the American Hospital Association, June, 1915.

Note.—This article together with Dr. J. L. Whitney's article on page 772 of this issue is part of a series of articles on the subject of clinical records. Others in the series are appearing in the *California State Journal of Medicine*.

mination of sugar or urea in the blood, or the technique of blood pressure measurements. Incomprehensible abbreviations are also prone to creep into the records. The latter may be avoided by supplying a list of permissible abbreviations⁴ and insisting on their exclusive use. This may well be incorporated into the history outline prescribed for students and interns and a copy bound with the records. The usefulness of the abbreviations will depend upon their simplicity and fairly obvious meaning.

The record forms⁴ should be carefully planned to encourage completeness in reports. Thus, in connection with the differential count of leucocytes should be stated the number of cells on which it is based, since this will very largely determine its value. For the same reason the test used for occult blood, the method of determining sugar percentage, of reading blood pressures, etc., should all be indicated.

Ambiguity in other reports we have planned to avoid by the use of a "ward reference book"⁴ containing the exact description of various clinical procedures in use which have not as yet become well established in the text books. The book has loose leaves and an alphabetic index; and whenever it is decided to try out something which is not already a ward routine, for example, functional liver tests, someone looks up the literature and writes out the exact technic to be followed, together with references and the date when the addition to the book is made. A copy of this ward book is bound with the first volume of the medical records as a sort of preface; and from time to time additions or changes are to be noted in later volumes, so that at any future time it will be possible by comparing the data of a given history with the dates on these introductory pages to know the exact technic in vogue at the time. Aside from this help in clarifying the records, this ward reference book is found very useful to interns and students who are set at tasks that are new to them. The book also contains the prescribed history outline and examples of the exact form in which various routine clinical reports are to be entered.

The training school for nurses as well as the medical school is a valuable asset in the development of good clinical records. Nurses are readily taught the technic of blood pressure determinations, using the palpatory index for systolic pressure and the change or disappearance of sounds for the diastole. With proper supervision, we believe their readings to be reliable. The result of this training is that nurses in the out-patient maternity service can keep track of patients' blood pressures; also that in ward cases, when desirable, blood pressure readings may be taken as often as the temperature and pulse. This is not at all inconvenient when a machine is left clamped to the bed and perhaps even the cuff left *in situ*. Nurses readily do this as part of the ward routine, whereas the inconvenience of it on the part of the staff is practically prohibitive. Nurses are also trained to

count the heart rate by using the stethoscope and to record this as well as the ordinary pulse count when there is a discrepancy. If desired, they can also record specific gravity of the urine, its daily amount, and patients' weights.

Pupils in the training school are made to feel that accuracy and neatness in their reports are essential parts of their training; and since this attitude has been taken they respond almost without exception with pride and interest in making their records as good as possible. The charts are no longer hung on the beds where they are almost certain to be soiled; but each, together with the intern's clinical record, is safely kept in an aluminum binder in its pigeon-hole on the nurses' desk. One nurse at a time is responsible for the charts in a ward. The result is that although a great deal more matter is now put on these charts (7 to 9 separate graphs)⁴ and they cover more days than formerly (three weeks of four-hourly observations on a page), the need for recopying is much less frequent.

For the further promotion of completeness and accuracy, the records before filing are reviewed by the interns and residents, by the chiefs of service when they write the diagnoses, by the custodian of records, and finally by a member of the medical staff who is conversant with the diagnosis nomenclature and filing system, who makes sure that the form of the diagnoses will result in their proper filing, and who also adds secondary diagnoses which may have been overlooked.⁵

After filing, the records are still incomplete until every effort has been made to secure end results by an efficient follow-up system.^{5,4} Such a system should embrace the records of all services and should include: (1) The psychological preparation of patients leaving the hospital. (2) The personal note so far as possible in the follow-up letters. (3) Provision for follow-up letters at shorter or longer intervals according to the nature of the case. (4) Coöperation on the part of the out-patient staff by transmitting to the house record room notes of important developments in cases seen by those who have been in the wards.

ACCESSIBILITY OF MATERIAL.

This is only secondary in importance to completeness and accuracy. Heretofore it has not to my knowledge been customary, even for hospitals with high standards, to do more in this direction than keep a diagnosis card catalog with perhaps cross references to the main complications and a separate set of cards referring to regions affected and to operations. While such a catalog is essential (it should contain many more secondary diagnoses than is usual)⁵ and admirably serves the purpose when it is desired to look up cases of a certain disease, it is of little or no help to the one who wishes to analyze, for example, cases with high white blood count,

cardiac arrhythmia, or albuminuria, or cases who have had vomiting or chest pain or dizziness as a symptom, or who have had typhoid fever in the past, or in whose families there was tuberculosis or obesity, etc., etc. Heretofore the only approach to such data has been through tedious hours or days or weeks of reading old records; and it is not surprising that comparatively few analyses from such points of view have been made. An experiment which we have carried out during the past two years has shown that with comparatively little initial expenditure of time, it is possible to make such facts as these as accessible as the diagnoses themselves.

A large card (reproduced herewith) the size of the record sheets (21.5 x 28 cm.) is printed on one side. At the top are spaces for the patient's name, age, hospital number, and diagnoses, etc.; and on the remainder of the card are headings to cover the main points in family history, past history, present illness, physical examination, laboratory and other clinical procedures. One of these "clinical index cards" is sent by the office with each case admitted to the medical service; and the intern while writing the regular history at the bedside underscores or negatives items on the card referring to history. *E.g.* he underlines "typhoid" if the patient has had typhoid fever, and he draws a circle through the word if there is no suggestion of typhoid in the history; but if, for any reason, the information cannot be obtained or is doubtful, the item is questioned or not marked at all. Since it is not desirable to fill the regular history with a great many negative statements which do not have an obvious bearing on the case, this card places on record many negative facts which otherwise would certainly not be preserved.

The remainder of the work on this index is done in the record room. After reviewing the marks made by the intern, the custodian proceeds to read the present illness, physical examination, the later clinical notes on the case, as well as the temperature and laboratory charts, and checks off the findings on the index card. For example, if the spleen is felt or is enlarged to percussion, the word is underlined on the card; if a heart murmur or cardiac percussion change is noted, "heart" is underlined; if astereognosis or cutaneous anesthesia is present, "sensory changes" on the card is underlined, and so on. It is obviously impossible and not desirable to go into further subdivisions on the index card. Its purpose is not at all to take the place of the clinical record, but to assist in finding the desired material in the records. If one wishes to collect the cases in which anesthesia or hypesthesia was found, a clerk in a few minutes will turn over the cards for a year and get together all the cases that have shown "sensory changes," and among these will be the desired material.

A few important treatments are listed, such as digitalis and intravenous medication. All the common laboratory and bedside clinical pro-

cedures have a place, such, for example, as gastric lavage, puncture of chest, spinal canal, etc., functional tests, complement fixation tests, sensitization tests, x-rays of various parts of the body, pulse and other tracings, photographs, physical measurements, etc. These are simply marked to show which were done. The results of tests are indicated only when they can be expressed by a mark or two (*e.g.* Wassermann, Widal, tuberculin, phenolsulphonephthalein elimination, etc.). Similarly the card when finished contains the highest and the lowest recorded figures for temperature, pulse, respiration, white blood count, hemoglobin, systolic and diastolic blood pressure, amount of urine, etc. The range of usefulness thus afforded is great. Within a few minutes one can have placed before him the records of all cases that have had fever with big spleen or low white count or positive Wassermann or blood culture; cases with headache as a symptom and systolic blood pressure above 170 or hemoglobin below 50%, etc., etc.

It will be observed that the card is designed to give unusually complete information regarding diagnoses, showing who made the clinical diagnoses and how far they were corroborated or amplified or contradicted by operation or autopsy. Pre-autopsy diagnoses have always been difficult to obtain in definite written form. A method for securing them with a good deal of certainty was devised by my colleague, Dr. J. L. Whitney. It consists of a form giving authorization for the autopsy and containing space for complete clinical diagnoses as well as a short résumé of the case for the benefit of the pathologist and space for the pathologist's diagnoses and remarks. Special comment is made by him on clinical findings which fail to receive clear explanation at the autopsy table. The superintendent will not sign this permit for the examination until the resident of the service has written his diagnoses. The sheet is bound with the records.⁴

An important space on the card is that marked "special." In it are written special items from the clinical notes which are not in the printed outline, often observations by members of the staff. For example, during thoracentesis, the patient faints and is given stimulants. The opportunity is quickly taken of observing what happens to blood pressure, pulse rate, etc. Following the regular description of the tapping in the record will appear an account of the incident under the underlined heading "syncope and circulatory stimulants." This caption will later be copied under "special" on the clinical index card for that case. Other examples are: "Blood pressure in arm and leg," "Respiration experiments," "Electrical conductivity of serum." To the worker who is doing a series of clinical experiments this offers a convenient and safe way of preserving his material; but its chief value lies in the saving of what would otherwise certainly be lost, namely the many valuable clinical observations made over a period of years in

UNIVERSITY OF CALIFORNIA HOSPITAL

Hosp. No.	Name	Age	Entered Hospital	19...
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Clin. Diagnoses (Those dated *before proof* by visiting staff marked "V", by resident "R", by interne "I"
Those proved correct "c," wrong "w".)

FAMILY HISTORY.		PHYSICAL FINDINGS.	
Alcoholism	Obesity	Tuberculosis	
Apoplexy	Epilepsy		
Cancer	Insanity		
Diabetes	"Nervous breakdown"		
Gout	Miscarriages		

PAST HISTORY.			
Race { F.....			
{ M.....	Birthplace.....		

Residences in last 10 years		Occupations in last 10 years	
Measles	Chorea	Gonorrhea	
Mumps	Arthritis	Habits:	
(with orchitis?)	(ac. art. rheum?)	tea..... cof.....	
Whooping cough	Tonsillitis	alc..... tob.....	
Chicken pox	Pneumonia	drug.....	
Smallpox	Pleurisy	operations:	
Vaccinia	(tapped?)		
Scarlet fever	Malaria		
Diphtheria	Otitis media	Injuries:	
Typhoid	Genital sore		

SYMPTOM CATALOG (FROM HISTORY AND LATER CLINICAL NOTES)			
Pain:	"Nervousness"	Digestive:	anorexia, other appetite, constipation, diarrhea, vomiting
Head	Vertigo		
Face, throat, neck	Convulsions		
Chest	Unconsciousness		
Abdomen, pelvis	Mental changes		
Back	Misel. psychic phen.		
Extremities			
Joint Symps. (not pain)	Sphincter: rect., blad.	Blood from nose, lungs, stomach, rectum	
Other sensory changes: an., hyp., hyper., or paresthesia, abn. temp. sense	Other G. U.		
Neuro-muscular apparatus: weakness, paralysis, gait, tremors, con- tractures, atrophies	Respiratory: nose, throat, larynx, cough, dyspnea, orthopnea,	Body surface: pallor, jaun- dice, edema, itching, sweating, falling hair	
Speech defect (including aphasia, agraphia, etc.)	Ear: deafness, tinnitus	Feverishness Chills Malaise Sleep	
	Circulatory: palpit., flushing	General strength Wt.: gain, loss	

—CLINICAL INDEX CARD,

MALE MEDICAL

RE-ENTRY AFTER MOS., No REPORT AFTER MOS.

.....
Down in Hell

Additional Diagnoses proved by operation or autopsy

OTHER CLINICAL DATA.			SPECIAL.		
Temp. (r.= rectal)	Highest.....	Lowest.....	Sputum:	T. B.	Influenza
Pulse (irreg.?)	.....	.....		Pneumoc.	
Resp. (irreg.?)	.....	.....	Feces:		
Bl. pr. max.	.....	.....		Blood	
Bl. pr. min.	.....	.....		Parasites	
Liquids (e.c.)	.....	.....	Gastric lavage		
Urine: amt. (e.c.)	.....	.....	Duodenal aspiration		Photograph of: Plaster models, etc.
Sp. grav.	.....	.....	Puncture of:		Röntgen Exam.: Plate Fluoro.
Albumin	.....	.....	Spinal canal	Head	.....
Sugar	.....	.....	Pleura	Chest	.....
NaCl	.....	.....	Pericardium	Abdomen	.....
Total solids	.....	.....	Abdomen	Extremity	.....
Blood: % Hgb.	.....	.....	Treatment		
Reds	.....	.....	Fluid.	Food.	Medicine.
Whites	.....	.....	Rectum		
% Neutro-	.....	.....	Subcut.		
% Lympho-	.....	.....	Mus.		
% Eosino-	.....	.....	Veins		
% Lg. mono-	.....	.....	Intra- spinal		
Plates	.....	.....	Digitalis and allied drugs		
Urea	.....	.....	Venesection X-ray		
Noncoag. N.	.....	.....	NOTES:—Positive findings (e.g. an acknowledgment of a disease or a symptom by the patient or an abnormality discovered in exam. or lab. test) are underlined, negative ones marked out with a zero (0), and doubtful ones marked "?". No mark means information not obtained. A check (✓) means test done without indicating result. A heading underlined means an abnormal finding outside the list following it. A heading marked out with zero indicates a general negative statement in record, e.g. "reflexes normal."		
Bleeding time	.....	.....	
Coag. time	.....	.....	
Fibrinogen	.....	.....	
Functional Tests:					
Phen-sulph-phth.	.....	.....	
KI	.....	.....	
Lactose	.....	.....	
Levulose	.....	.....	
Weight	.....	.....	
Chest capacity	.....	.....	
HT.=.....cm.					
Physical measurements.					
Strength tests.					
Electrical reactions.					
Special Chemical or Physical Examinations:					
Baet. or Path. Exam.:					
Graphic Records: Resp. Electrocard., pulse tracing					

routine ward work, especially those which are not frequently repeated.

It is needless to draw out the comparison of this *availability* and its ever expanding usefulness with the hopelessly lost condition of similar valuable observations which are numerous in the records of most good hospitals.

To the plan outlined above there appear to be three possible objections,—that it is complicated, that it is expensive, and that it necessitates trusting too much to the discretion of a person without medical training.

In answer to the first: It is as simple as it can be and yet give the results, and it works well. After two years' trial on the medical service, its use is now, with suitable modifications, to be extended in the University of California Hospital. It should not be undertaken, however, by any institution which is not prepared to employ a well trained custodian of records, and where there is not at least one member of the staff who will take a large personal interest and devote considerable time to it until it is well established. Profits are not to be reaped without this much invested.

In regard to the cost: The large clinical cards may cost one or two cents each; and the record custodian averages about 20 minutes or 13 cents' worth of time, in going over each medical history and transferring the data to the index card. This is estimated to be about one-third to one-half as expensive as it would be to have our records typewritten. Parenthetically, it may be added that, on grounds of accuracy and also of conciseness, we prefer originals to typewritten copies.

The member of the staff who checks up the work of the record clerk at first will have to verify each item on the index cards. Within a day or so an intelligent clerk will learn to transfer the material from the chart and laboratory reports with very little further supervision; and in a few days of training she will do almost as well with the history and physical examination. She should, however, have assistance permanently in this part of the work. After six months' experience, Miss Clark's practice is now to mark places where there is any question, and two or three times a month I spend half an hour with her reviewing the work. It looks as if in the future still less of my time will be required. The mistakes that one without medical training will make in this work are usually in checking off too much rather than too little; an unusual wording in the description of heart or lungs may lead her to record the findings as abnormal when they are not so. Since the cards are only to be used for finding data in the regular histories, the only result of such errors would be that when one is looking over a series of cases for some particular finding he will run across an occasional history that does not contain what he is looking for.

SUMMARY.

Experiences are reported in the coöperation of a university hospital, medical school and training school for nurses to promote accuracy and completeness of clinical records. To the same end a few suggestions are offered concerning methods of recording certain data, but these are being taken up in detail in other articles. In addition to the usual diagnosis index (which should be made to include many more of the secondary diagnoses) a plan is described for indexing many clinical facts which cannot be included among the diagnoses.

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THE NOMENCLATURE AND CLASSIFICATION OF DISEASES IN USE IN THE UNIVERSITY OF CALIFORNIA HOSPITAL.*

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THREE years ago the University of California Hospital took certain definite steps toward enlarging its field of usefulness both as a servant of the public and as a teaching institution. This involved much work of construction and revision in bringing various details of hospital management into line with modern and efficient methods. Not the least important of these problems was that of finding or devising a system of nomenclature and a scheme of filing the hospital records which should accomplish certain desired objects.

The first of these objects was uniformity of nomenclature in diagnosis. The second was a method of indicating to the clinician, by means of a classification of diseases as complete as possible, the degree of fullness and accuracy desired in this particular, and, further, of indicating the desirability of establishing in each case various relationships, chiefly etiological, which were felt to be indispensable for the purposes of scientific research.

The third, and perhaps most important object was to have a system of filing which should render easily accessible the wealth of material too often permanently locked up in the hospital records. It seems hardly necessary here to dilate upon the fact that the investigations carried on in a hospital ease, frequently of little enough importance to the patient himself, often acquire their chief value only when they can be

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NOTE.—This article together with Dr. E. S. Kilgore's article on page 767 of this issue is part of a series of articles on the subject of clinical records. Others in the series are appearing in the *California State Journal of Medicine*.

collated with similar investigations carried on in many other cases. Such collation is made almost impossible in the absence of a filing system which will enable the researcher to lay his hands easily upon the desired material.

Fourth, it seemed highly desirable that the method adopted should be flexible enough to allow of additions and modification in the light of new knowledge.

Fifth, the system must be as simple and practical as is consistent with the attainment of the ends desired. After considerable investigation it was decided to devise a system of our own, rather than to adopt any of those which were available to our hands. The reasons for that decision will be later discussed.

In the preparation of this scheme the requirements as given above were constantly kept in mind. A brief outline will be given here to illustrate how these requirements were met.

The attainment of uniformity in nomenclature was in most cases simple, though in others it involved the selection from a number of alternatives of that term which seemed most appropriate. As there is at present no final authority as to the standing of medical words, this selection had to be in many cases rather arbitrary. It has been generally the rule to adopt that term which seemed to be supported by the best usage, though, where possible, preference has always been given to simplicity, to English rather than to foreign words, and to good etymology,—and of this last it ought to be said that no other science has such a collection of bad etymology as medical terms display. Anyone dabbling in terminology must strongly feel the need of an authoritative body to revise thoroughly medical terminology, and bring medicine into line with all other sciences in this respect. In the preparation of this classification, however, temptation has been resisted, and nothing very radical has been done in the way of offering substitutes for terms where long use rather than respectable antecedents has given them standing.

One instance may, however, be given in which, for the sake of clearness, some departure has been made from common usage. This is in relation to the adjectives *acute*, *subacute*, and *chronic*. *Subacute* is not accepted in any case, occupying a position entirely too vague between the other two. In most instances it can be replaced by *acute*. *Acute* and *chronic* are very unfortunate words, since their meaning is never clear. Ordinarily they imply a short or long duration of the process, but no fixed limit can ever be set. Sometimes, as in the case of nephritis, acute means rather self-limited, while chronic implies incurability. In other instances acute is taken to mean a more violent form of the disease than subacute or chronic, quite apart from the time element. Again, the pathologist uses the terms wholly on the basis of the kind of cells present on microscopic examination. According to this usage a chronic (*i.e.*, a fibrous)

peritonitis can develop in a week, which to a clinician seems a good deal of an absurdity. In this sense chronic often signifies merely the scars that follow a once active process.

To meet this difficulty, it seemed best to discard at least the word "acute" in many instances where the situation was worst. For example, an infectious endocarditis is essentially the same process whether it lasts a week or two years, yet a two-year old process can hardly be called "acute." In this case we suggest the use of the terms "active infectious" and "chronic fibrous endocarditis." Inflammations of the serous surfaces offer a similar difficulty. In the case of pleurisy, for example, we recommend the terms "fibrinous pleurisy," "fibrous pleurisy" and "pleurisy with effusion."

The second point is that of completeness in detail, and accuracy. We wish to have the clinician state, and to be prepared to catalog, every pathological condition of any importance which a given patient may show. Such subsidiary conditions as secondary anemia, ascites, coma, etc., are ordinarily not set down as part of the diagnosis, but it often becomes highly desirable to collect, for comparison or for further study, all the cases which have shown just such conditions. We ask the clinician to supply these data, and we furnish as a model an outline of the lesions possible in a given disease. We further distinguish between complications (*i.e.* conditions dependent on the main lesions), and coincident conditions not causally related and in the cataloging this causal relationship is indicated.

We try to avoid collective terms as being insufficiently accurate, and ask that all lesions present in a complex be named. "Genito-urinary tuberculosis" is replaced by "Tuberculosis of right kidney, ureter, bladder and epididymis," while "Cardio-renal complex" gives way to "Chronic nephritis and myocarditis," or whatever the combination is believed to be. Of course a certain number of such less accurate diagnoses, as well as some symptomatic diagnoses, are unavoidable, often because the study of a case has not been finished, but provision is made for the listing of such cases under less specific headings.

Causal relationships, and etiology in general, have been considered of the greatest importance.

We wish to have stated in the diagnosis not only each lesion present, but its cause, and its connection with other lesions. The diagnosis of "bronchitis" is not complete unless we know the organism that caused it. The diagnosis of "chronic endocarditis, and syphilis" is not satisfactory unless we are told whether the one was the cause of the other.

Where the etiology can be satisfactorily established, the diagnosis is primarily listed on the basis of the organism or other causal agent. No other of the systems which we have examined has gone to the same extent in grouping diag-

noses on the basis of primary cause. Such lesions as those of syphilis and tuberculosis have very commonly been grouped under an etiological heading. We extend this method to include every case where the organism or other etiological agent has been determined upon. In the infections the organism itself forms the basis of division rather than the pathological lesion; thus, the heading pneumoococcus rather than pneumonia, and streptococcus viridans, etc., rather than rheumatic fever. The same correlation of cause and effect is sought after in other diseases than infections, as diabetic cataract, lead neuritis, amebic liver abscess. We try to connect even late results with their causes, as poliomyelitis deformity, fibrous endocarditis due to rheumatic fever, feeble-mindedness following encephalitis.

In order to accomplish this accuracy and detail in diagnosis, it has been found advisable that a member of the staff spend a short time once a week in running through the current histories ready for filing, and see not only that the diagnoses conform to the system, but that all the desired secondary diagnoses and etiological data are indicated in each case.

The next consideration was the arrangement of the catalog in such a way as to be of the greatest assistance to one who was gathering material for investigation. This necessitates the throwing together of those cases which are likely to be studied as a group. If tuberculosis were the subject of investigation, the tuberculosis section should include such lesions of every part of the body. If, on the other hand, diseases of the lungs were being considered, it was desirable that every lung condition be found in one place. Therefore, logic demands that tuberculosis of the lungs be filed both under the heading of tuberculosis and under that of diseases of the lungs. Every other filing system of which we know makes a more or less arbitrary assignment in such a case to one position or the other, but we see no particular objection to the idea of filing a single diagnosis in more than one place. It makes a little more work in card writing, but it also simplifies the cataloger's work. The rule is: "In case of doubt as to whether a diagnosis belongs in one place or another, file it in both."

The same system of double-listing holds for complications. We enter a case under kidney-diseases as "chronic nephritis with coma," and under the nervous system, as "coma due to nephritis," and in the latter place will also be found "coma due to diabetes," "coma due to brain trauma," etc.*

* Since the above was written, Miss Clark, the hospital record-clerk, has introduced the method of using a certain number of "dummy-cards" in the catalog. This will save much labor, even though it is to be applied only in such diagnoses as are rather common. Thus, under "Tuberculosis, Lungs" in the Infectious Diseases will be found in full all names and hospital numbers with this diagnosis; but under "Lungs, Tuberculosis" (Respiratory System) will be found a "dummy-card" with the notation "See Infectious Diseases, Tuberculosis, Lungs." Thus we still preserve the advantage of the double listing.

This system of grouping cases of similar nature has already proved a great convenience not only in certain statistical researches made in this hospital, but in preparing lists of patients who are to be asked to return for demonstration to students.

The next desideratum was felt to be flexibility—that is, the system should be capable of later additions and alterations in the light of new knowledge. Every method which involves the use of numbers or other tokens in designating diagnoses is very ill-adapted to later alteration. We know of one hospital which embarked on a system of such a character years ago, and now finds that new diagnoses are often impossible to list, and that changing the system is prohibitive, since this would practically amount to copying every card for years back. For this reason numbers have not been used as a vital part of this scheme. A certain number of such tokens appear as guides to the eye, and for purposes of cross-reference from one section to another, and from the index; but these tokens are not used in the card catalog, and are likely to be changed with every new edition. As it stands, whole sections can be shifted if so desired, e.g., all the syphilis cards may later be changed from the section of infectious diseases to that of animal parasites, if new knowledge seems to warrant it.

Finally, as to practicality: It is to be taken for granted that the maximum of value cannot be attained without some complication of the system. We expect always to have a trained cataloger to do the work of filing, and anticipate that, in addition, one member of the staff will necessarily continue to give a half-hour or so a week to looking through the histories. It may be said, however, that this scheme has been found satisfactory in this hospital in two years of use by catalogers who were not previously trained, and, although some doubts arise and mistakes are made, these are probably not more frequent than with any other system.

An integral part of the scheme, following the tabulations, will be a very full index, containing not only the terms as used in the classification, but all possible synonyms, and even many terms which are refused standing, with cross-reference to the section where the approved terminology may be found.

No full description of the classification can be attempted in this place. It will be observed that the first seven main divisions are on the basis of etiology, viz. Infections, Animal Parasites, Constitutional Diseases, Poisons, General and Traumatic Effects of External Agents, and New Growths. To these are added No Disease and No Diagnosis. The remaining fourteen headings represent anatomical systems, under which as subheads will be found the individual organs and tissues, and under these, again, the appropriate diagnoses. With few exceptions the various heads and subheads are arranged alphabetically.

eally, so that a diagnosis which is not given in the list can always be interpolated in its proper place. In this way we avoid the necessity for such a heading as "Unclassified."

I think that more than a word of apology is called for to justify the presentation of a new classification of this kind. The more one works with medical statistics, the more one is impressed with the great need for uniformity of nomenclature and classification throughout the country, or throughout the world. Examination of text-books of medicine shows that no two classify diseases by the same method, and often the same terms are used by two authors with widely different meanings.

Keenly as we felt the desirability of following some standard system, it seemed to us more and more evident that the optimum system had not yet been reached. The classifications which we considered most fully were the International List of the Causes of Death, the Bellevue Nomenclature, and those of the Massachusetts General Hospital, and Stanford University. Two of these have, it is true, been rather widely copied by hospitals throughout the country. At the same time we felt that none of them would do for us exactly the service we had in mind. For example, they would not allow, without modification, the entering of diagnoses in more than one place, a point which we considered of great advantage to the statistician. Also, none of them provided for the listing of subsidiary diagnoses to the extent which we wished, and none went far enough in the effort to correlate each lesion with its etiological basis.

In a general way we follow fairly closely the methods of the Bellevue and Massachusetts lists, only going farther in the same direction. Stanford has aimed at simplicity by furnishing only an alphabetical list of diagnoses without classification, with full cross reference to show the proper place for cataloging each term. The index of our system will give us much the same advantage, and we can still preserve those features mentioned above on which we lay so much value.

The justification of our wisdom in devising our own system will be in the way it works out, and in its reception by others. We believe the principle to be right, and hope that others will copy it. And if there are improvements to be made in it, we believe it will be found much more amenable to alteration and modification than the other schemes mentioned.

It should here be added that many other members of the Hospital Staff have generously co-operated, sometimes to the extent of drafting whole sections in which they were particularly interested. For the general plan the writer assumes the responsibility.

A few extracts from the system are here appended, to illustrate the general method.

CLASSIFICATION OF DISEASES FOR USE IN THE UNIVERSITY OF CALIFORNIA HOSPITAL. (Sample Pages)

Main Divisions:

- A. Infectious Diseases
- B. Diseases due to Animal Parasites.
- C. General Constitutional and Nutritional Disorders
- D. Poisoning
- E. General Results of External Agents
- F. Traumatic Effects of External Agents
- G. New Growths
- H. No Disease
- I. No Diagnosis
- I. Diseases of the Blood
- II. Diseases of the Circulatory System
- III. Diseases of the Digestive System
- IV. Diseases of the Ductless Glands
- V. Diseases of the Ear
- VI. Diseases of the Eye
- VII. Diseases of the Female Generative System
- VIII. Diseases of the Locomotor System
- IX. Diseases of the Lymphatic System
- X. Diseases of the Male Generative System
- XI. Diseases of the Nervous System
- XII. Diseases of the Respiratory System
- XIII. Diseases of the Skin and Appendages
- XIV. Diseases of the Urinary System

A. INFECTIOUS DISEASES

(In every infectious disease, name all lesions found. In this list not all possible lesions can be given as subheads for each organism. In a few cases (Gonococcus, Pneumococcus, Syphilis, etc.) subheads are given in some detail. They may be used as examples for other infections where similar detail is not given. Avoid general diagnoses like Actinomycosis, Syphilis, etc., using these only when the disease is not localized.)

- 1. Actinomycosis
 - III.6 Liver
 - VIII.1 Bones
 - IX.2 Lymph-nodes
 - XII.4 Lungs
 - XIII. Skin and Subcutaneous Tissues
- 2. Anthrax
 - I. Septicaemia
 - XIII. Skin and Subcutaneous Tissues
 - Malignant Pustule
- 3. Bacillus Aerogenes Capsulatus Infections
- 4. Bacillus Mucosus Capsulatus Infections
 - (For subheads see Pneumococcus)
- 5. Blastomycosis (Name part involved and lesions)
- 6. Cholera, Asiatic
 - a. Carrier
- 7. Coecidioides Infections
- 8. Colon Bacillus Infections
- 33. Rabies
 - a. Bite from rabid or suspected animal

34. Relapsing Fever
 35. Rheumatic Fever Complex (In case organism is determined, list diagnoses under heading of this organism, with same subheads.)
- II. 3.f Endocarditis
 Active
 Chronic Lesions resulting from
- II. 5.a Pericarditis
 Fibrinous
 With Effusion
 Fibrous
- IV. 6.k Thyroiditis
- VIII. 4.b.i Infectious Arthritis, Rheumatic
 5.j Myositis
- XI. 1.b Chorea Minor
- XII. 8.e Pleurisy
 Fibrinous
 With Effusion
- XIII. Skin Lesions
36. Rocky Mountain Fever
37. Rubella
38. Scarlet Fever
 a. Acute Nephritis
39. Sporotrichosis
40. Staphylococcus Infections
- I. Septicemia
 - II. Circulatory System
 - 3. Heart
 - f. Endocarditis
 - 4. Mediastinum
 - a. Abscess
 - c. Mediastinitis
 - 5. Pericardium
 - a. Pericarditis
 - 7. Veins
 - b. Thrombophlebitis
 - III. Digestive System
 - 2. Peritoneum
 - m. Peritonitis
 - 6. Liver
 - a. Abscess
 - IV. Ductless Glands
 - V. Ear
 - 2. Auricle
 - d. Perichondritis
 - 4. External Meatus
 - e. Furuncle
 - f. Otitis Externa
 - 6. Mastoid
 - b. Mastoiditis
 - 7. Middle Ear
 - e. Otitis Media
- II. DISEASES OF THE CIRCULATORY SYSTEM.
3. Heart
- a. *Adams-Stokes syndrome
 b. *Angina Pectoris
- e. Aneurysm of Heart
 d. Congenital Heart Lesions (unspecified)
 - i. Defective Interventricular Septum
 - ii. Open Ductus Arteriosus
 - iii. Open Foramen Ovalle
 - iv. Pulmonic Stenosis
- e. Disorders of the Heart-beat
 - i. *Arrhythmia (unspecified)
 - ii. Auricular Flutter
 - iii. *Bradycardia
 - iv. Extrasystole
 - Auricular
 - Ventricular
 - v. *Fibrillation
 - Auricular
 - Ventricular
 - vi. *Heart-block
 - Complete
 - Incomplete
 - vii. *Pulsus Alternans
 - viii. Sinus Arrhythmia
 - ix. *Tachycardia
 - Paroxysmal
- f. Endocarditis (Name Valves and Lesions, e.g., Chronic Fibrous Endocarditis with Mitral Insufficiency)
 - i. Mural
 - ii. Valvular
 - a. Active Infectious
 - b. Chronic Fibrous
- g. Fatty Heart
- h. Gumma
- i. Hypertrophy
 - i. Athlete's Heart
- j. Hypertrophy and Dilatation
- k. Myocarditis
 - i. Toxic (Cloudy Swelling)
 - ii. Acute Interstitial
 - iii. Chronic Interstitial Affecting the Auriculo-ventricular Bundle
 - iv. Myocardial Insufficiency
- l. Neurosis (unspecified)
- m. Rupture
- n. Thrombosis, Mural
- o. Valvular Lesions (Specify if lesion is decompensated)
 - i. Aortic Insufficiency
 - ii. Aortic Stenosis
 - iii. Mitral Insufficiency
 - iv. Mitral Stenosis
 - v. Pulmonic Insufficiency
 - vi. Tricuspid Insufficiency
 - vii. Tricuspid Stenosis
 - viii. Aneurysm of Valve
- p. Wound

*Use only as secondary diagnosis, giving cause of condition.

GUMMATOUS CERVICAL ADENITIS: ITS RELATION TO AND MISTAKEN DIAGNOSIS FOR TUBERCULOUS CERVICAL ADENITIS.*

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In all the vast amount of recent literature on syphilis, much of which pertains to the action of the recent remedies, salvarsan and neo-salvarsan, and the Wassermann technic, we find very little concerning syphilis of the cervical lymph glands. Gummatus cervical adenitis has been thought to be a comparatively rare manifestation, many syphilographers and those particularly interested in syphilis having seen but few cases. Where this form of tertiary manifestation occurs in cases obviously syphilitic, with other lesions or definite history, the condition is of interest; but the type which offers the greatest interest and difficulty of recognition is that which is the subject of this paper, that is gummatus cervical adenitis without other obvious signs of syphilis, mistaken in some cases and treated for tuberculous cervical adenitis, often over long periods of time without result. Several unusual and obscure cases of this nature I have been fortunate enough to recognize and study in the past few years and this has made a further study of the question of unusual interest.

A possible relation between tuberculosis and syphilis is well known to have occupied the attention of many students of both diseases for a considerable time; and we are constantly on the alert in cases of tuberculosis to prove or disprove a previous luetic infection. That numbers of cases of gummatus cervical adenitis are treated unrecognized as such, in the clinics and in private practice as well, is my belief; moreover, I do not think the condition is nearly as uncommon as has been supposed.

Mr. Jonathan Hutchinson¹ in his classic work on syphilis calls attention to the difficulty of making a definite diagnosis histologically between the two diseases in all cases. That the two processes may affect the cervical glands at the same time seems probable. Perhaps in such cases, where this is the only specific lesion recognized clinically, the gummatus process attacks glands previously tuberculous, perhaps small and latent, and is situated in such a location on this account; a "locus minoris resistentiae." That the converse of this is true at times must be admitted though it would seem less possible. Mr. Hutchinson's unique case was that of a "recurring chancre" or chancre redux; (tertiary lesion simulating chancre). It was excised and sent for examination; the pathologist reported typical tuberculosis except that no tu-

bercle bacilli were found. The section was shown to several expert pathologists who all pronounced it typical tuberculosis. The primary lesion in this case antedated the gummatus inflammation by five years. The pathologist despite the history, adhered to his opinion of tuberculosis. Sir Jonathan said in his remarks on this most interesting case: "After all, in these cases perhaps the two agencies are at work together, and that a latent tuberculosis modifies a more recent syphilis." On this subject, which is of such direct importance to us in this paper, Dr. Macloed, quoted by Hutchinson, has this to say: "The differentiation by the microscope between the granulomata of syphilis and tuberculosis is always difficult and in some cases impossible; for example, in the syphilitic gummata where a histological architecture may be present which resembles that of a lupus nodule in every detail with the exception of the presence of the tubercle bacilli."

This brings the following ease to mind, also bearing directly on our subject though in the same general way as illustrating the difficulty of differentiating the two conditions, gumma and tuberculosis. A testicle was excised and was examined histologically by three competent pathologists. One pronounced it tuberculosis; one, sarcoma, and one, syphilis. After a time the other testicle became enlarged in exactly a similar manner and was cured by iodide of potassium.

In regard to the question of syphilis and tuberculosis, Burzi² quotes Nicholas, Favre and Charlet. In 45 out of 46 cases of syphilis they obtained a positive tuberculin reaction (intradermal) though clinically no symptoms of tuberculosis were found in the patients beforehand. It will be seen that when the pathological examination is at times so equivocal and perplexing, that the clinical picture between gumma and tuberculosis may be even more so, and especially where the process is in the cervical lymph glands. A careful history taken with a view to both tuberculosis and syphilis (congenital as well as acquired), is most important in arriving at a correct diagnosis of the condition, in cases of chronic cervical adenitis of a type to lead us to suspect one of these two conditions or both. Hawes³ has recently laid stress on the importance of a careful history in the cases of beginning tuberculosis and rightly laid stress on this over the physical examination. He urges that a history be taken with a view to syphilis in all cases. The history in cases where syphilis is suspected should be taken equally as carefully in cases of cervical adenitis. It is not enough to ask the common questions about miscarriages and stillborn children, but a more searching examination concerning collaterals and grandparents, if possible, should be obtained. It will often give precious information.

In passing now to a more special consideration of the subject we find, as stated previously,

* Read at the Pan-American Medical Congress, San Francisco, June, 1915.

that the literature on the subject of gummatus cervical adenitis is very scanty. A perusal of the *Index Medicus* from 1912 to 1913 and 1914 gave little information on this subject, though it is natural that some references may have escaped my attention. The most important, as well as interesting, communication on the subject is that of Wile⁴, though the latter part of our title, "The Relationship of the Condition to Tuberculosis of the Cervical Lymph Glands," is not brought out. Wile found a strikingly small number of cases in the literature and comments on the fact, as there is such an affinity for the lymph glands in the earlier stages of the disease. Why the deep lymphatics—chest, mediastinal, etc.—should be frequently invaded and the cervical glands escape so constantly, is a fact which well merits speculation.

In Fournier's analysis of 3429 cases of various tertiary forms of syphilis there is not a single instance of gummatus cervical adenitis (Wile). He estimated that the total of recorded cases was well under 100.

Virchow divided the process of gummatus cervical adenitis into three stages as follows: (1) Stage of simple irritation, during which the intercellular substance maintains a gelatinous consistency; (2) A medullary stage during which there is active cell proliferation, puriform softening of the tumor mass and softening of the intercellular substance; (3) The state of caseation in which active cell proliferation becomes less marked but in which the main cell types are connective tissue and granulation cells.

A brief résumé of Wile's cases is of interest at this time in connection with my own to be recorded later. A boy of 19 years received his initial infection only five months before the manifestation which is of interest to us. The syphilis was severe. Five weeks after infection there was some swelling of the glands in the left side of the neck; a supraclavicular gland swelled to the size of a plum; the skin was red and there was fluctuation. Aspiration gave a few drops of sero-purulent material. A few typical spirochetes were found with a dark field illumination. The glands ruptured by a pin point opening which enlarged, and typical gummatus ulcers developed. Five-tenths gram of salvarsan was administered once with marked local and general improvement; the patient had been under mercury before (salicylate grs. 3) every fifth day. In two weeks two small glands (unruptured) had diminished until they were of normal size and of the two ulcers the smallest one had entirely healed. There was gain in weight and marked improvement in health. Wile does not state whether there was any reason for supposing that there was a latent tuberculosis of the cervical glands in this case. From experience it would seem as if this was a perfectly possible reason for the process attacking the glands as it did. The age of the patient is favorable to such a supposition.

The following cases have recently come under my observation, illustrating this condition, and the effect of syphilis on what were pathologically pronounced tuberculous cervical glands:

CASE 1. M. G., a girl of eight years, was seen at the surgical clinic of the Boston Dispensary in my service as assistant surgeon, service of Dr. H. M. Chase, to whom I am indebted for the case. Patient first seen October 13, 1914, referred from the Children's Department for enlarged tuberculous (?) cervical glands. They had been enlarged three months. The patient had been treated one year before in the Surgical Department expectantly with that diagnosis. The history was given by the mother at the time as follows: Only child, no miscarriages, mother and father well. History of an old previous endocarditis. Examination showed a fairly well developed and nourished little girl. The cervical glands under the right lower maxilla were enlarged, the skin reddened and fluctuant. A large mass under the maxilla was firmly fixed, the chief site of disturbance. There were no obvious signs of inherited syphilis. There was a similar process less extensive on the left side of the neck. The tonsils were enlarged and the teeth were poor, there was a history of nasal obstruction. Cultures taken in the throat department showed various organisms, mostly staphylococci and pneumococci. The tonsils and adenoids were removed in the Throat Department and, at the same sitting, the glands were thoroughly opened, curetted and swabbed with iodine and drained. The specimen of gland debris was sent to the pathologist, Dr. F. B. Mallory, who reported that the glandular tissue showed on microscopic examination a process more suggestive of gumma than of tuberculosis. The Wassermann reaction at this time was negative. The Von Pirquet was also negative. After the pathologist's report was received, I put the child on mixed treatment which was later changed to hydrarg. cum creta and iodide. Improvement in the general condition was striking, locally there was some improvement in the glands. From a listless, tired little girl she began to be alert and interested. The glands were curetted again and much debris removed, the child was then given three injections of .2 grm. neosalvarsan (Dermatological Department). The effect was almost magical. In a few weeks the swelling in the neck had almost disappeared and the sinuses healed. In February, 1915, the child was discharged well, with a soft, supple neck, without obviously disfiguring scars. Of much interest are the following facts in connection with this case, ascertained later. The correct family history was as follows (first history by mother unreliable): The first child was stillborn. The third child died at four months. Twins, the fifth pregnancy, were premature and stillborn. The father later confessed that he had suffered from syphilis some years before, and had never been treated.

CASE 2. A. N. was seen at the Surgical Clinic of the Boston Dispensary, Dr. H. F. Day's service, in April, 1915. The history was as follows: The father died of cancer, the mother is living and well. There were four children; one died of measles. The child has had measles and pertussis. In February, 1915, operated on at the Boston City Hospital for tuberculous cervical adenitis. A radical excision of the glands on the left side of the neck was done,

Pathological report: Tuberculosis of the cervical lymph glands. Very soon after the operation the wound broke down and sinuses formed in the neck. Examination showed a well developed and nourished little girl. Skin and mucous membranes of good color. A puckered four-inch scar from old tuberculous gland on left side of neck and an abscess, probably tuberculous, on right side of neck. Lungs and heart negative. The Von Pirquet was positive. There were no obvious signs of inherited syphilis found on examination. April 26, Wassermann was positive. The neck was very slow in healing. After three weeks of specific treatment there was considerable improvement in the neck and the sinuses were nearly healed. One large soft mass above the left clavicle remained. No neosalvarsan has been administered. Child still under treatment.

CASE 3. Mrs. L. P., 45 years, was seen at the Surgical Clinic of the Boston Dispensary April 1, 1915. The family history was as follows: Mother died of "rheumatism" and "stomach trouble." The father is living and well. There were 11 children in the family, five sisters and five brothers. Two brothers and two sisters living. Six children died in infancy and childhood, some "passed away suddenly without cause." Patient has one son living and well, 14 years of age. As a child she was never strong, constant headaches, "poor blood" and easily run down. Married at 30. Only the child mentioned, and no miscarriages. One year ago in April there were enlarged cervical glands, bilateral, and in August they broke down and were incised and drained. They have been broken down and discharged pus from sinuses and ulcerated surfaces ever since. The glands in the neck were operated upon six different times, but no radical operation was done. The patient has felt very poorly of late. The diagnosis had been one of tuberculous cervical adenitis. On March 9, a positive Wassermann was obtained and four injections were then given of neosalvarsan at short intervals. Result: great improvement in neck condition, discharge lessened, sinuses healed, and though there is still a slight amount of indurated tissue in the neck, there has been great improvement. This is an example of probable true gumma of the cervical glands mistaken for tuberculosis in a possible congenital syphilitic.

CASE 4. Mrs. C. H., 28 years, was seen at the Surgical Clinic of the Boston Dispensary, October 27, 1913. There was a history of glandular swelling on the left side of the neck for 14 years. For the last two years the swelling had been painful. There was never any redness or fluctuation and there had been no sinuses or discharge. Some points in the general history are of interest. The patient had sought relief for the condition of the neck at various hospitals and dispensaries and of private physicians for years without benefit. The husband was living and well. The patient's father was dead, cause not ascertained. The mother is living and has diabetes. She has a positive Wassermann reaction. The x-rays of the mother's tibiae show a marked periostitis, and a brother of the patient, the mother says, has syphilis. Examination showed a well developed and nourished young woman. Throat and nose clear, teeth good, no obvious cause for the enlarged glands found on physical examination. There was no venereal history. On the left side of the neck there

is an irregularly prominent mass of hard discrete glands from fibert to walnut size, occupying the region immediately anterior and posterior to the sterno-mastoid, along its length, mostly in the lower and middle thirds of this space. The lower glands were the largest, just above the clavicle and slightly posterior. There was no other glandular enlargement found. Chest negative and abdomen negative. An x-ray of the chest showed numerous glands "peppered" well down to the diaphragm with some opacity about some of the glands. An x-ray of the tibiae showed a definite periostitis. The Wassermann reaction was negative. The child was examined and showed no obvious signs of inherited disease. On November 5 the patient was put on intensive specific treatment, mercurial inunctions and iodide. The effect was striking. After three weeks, the glands were softer and smaller and the neck could be moved better. The patient's general health which had not been good was greatly improved. By January the glands were nearly gone, only one of large size remaining. In April, 1914, I excised one of the small glands for diagnosis under local anesthesia. The pathologist reported typical tuberculosis of a cervical lymph node. A short time after the operation the incision broke down *without suppuration*, the wound taking on a typically gummatous character, which healed promptly with a good scar under mercurial ointment locally. In January, 1915, the patient was seen again. The glands could hardly be felt and there was no discomfort or pain. The neck was soft. General condition good. There is a small sessile growth projecting down from the left side of the soft palate. Patient refuses its excision.

Fasal,⁵ quoted by Wile, says that the topography of the gummatous adenopathies seems to be dependent on the occurrence of the earlier cutaneous and mucous membrane lesions. This would seem plausible if we accept the modern view of spirochetal permeation.

Up to 1912 only two cases of this condition were reported in the American literature. Most of the cases reported were those occurring at the same time as other tertiary lesions. Wile says that, in his opinion, in the state of our knowledge of the different granulomata's reactions to mercury and iodide, great caution must be exercised in making a positive diagnosis of syphilis on the clinical signs of improvement, without other data and examinations to judge by. We must also bear in mind the opinion of Macleod stated earlier in the paper, and that of Nicholas, Favre and Charlet concerning the extreme difficulty and at times impossibility of arriving at a correct diagnosis microscopically, between syphilis and tuberculosis.

Cases of cervical adenitis supposed to be tuberculous, yet not quite characteristic, should be regarded as possibly gummatous, and careful study with all the means at our command should be made to prove or disprove this supposition definitely. It has been proved that, after all, the clinician must fall back on consideration of the case with an exhaustive history pertaining to possible syphilis, to arrive at a correct diagnosis.

REFERENCES.

- ¹ Hutchinson: Syphilis, 1909 edition, pp. 183-185.
² Burzi: Gaz. h'Op. Milano, 1911-1912, 432, pp. 1629-1631.
³ Hawes: BOSTON MED. AND SURG. JOUR., May, 1915, Vol. clxxii, p. 731.
⁴ Wile: Arch. f. Dermat. u. Syph. Wien und Leips. 1912, Vol. ex, 123, 1193, 1200.
⁵ Fasal: Arch. f. Dermat. u. Syph. Wien und Leips. 1910, Vol. c, 111, p. 305.



LOCAL ANESTHESIA IN THE RADICAL CURE OF HERNIA.

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DURING the past few years, under the leadership of Braun of Zwickau, the use of local anesthesia has been popularized and its field broadened. In a tentative way the method has been applied in the German clinics to practically every operation listed in the text-books. As a consequence, there has been a definite reawakening of interest in the subject in this country, an interest which has lain dormant since the brilliant work of Corning, Crile, Matas and Cushing, which followed close upon the introduction of cocaine in the eighties.

As a result of experimentation and of recorded experience, the practical applications, and the limitations of the method as well, can now be rather definitely stated. Certain fields exist where general anesthesia will still be preferred, for instance, the peritoneal cavity and the brain; not that local anesthesia cannot be and has not been successfully employed in these regions, but that the advantages of the method are on the whole overbalanced by the complexity of the technic, the uncertainty of the results, and the strain on the patient.

One field in which local anesthesia may be employed with considerable satisfaction, according to my experience, is in the operative treatment of inguinal hernia. It has recently happened that within one week three patients with inguinal hernia, in whom general anesthesia was contra-indicated, came under my care, the hernia being recurrent in two instances. Briefly summarized, their histories are as follows:

CASE 1. W. H. D., 62, no occupation, entered the Boston City Hospital July 15, 1915. Has had a massive right inguinal hernia for 14 years, during which period has worn a truss constantly. Lately pain has been troublesome. Desires operation on account of pain.

Obese. Blind from infection following injury. Crackling rales at left base. Heart enlarged outward, with loud musical systolic murmur transmitted to axilla. Urine shows renal elements.

Local: Easily reducible right inguinal hernia size of hen's egg when recumbent. Large fat pad, with calloused skin over area size of palm.

Operation: Under local anesthesia, July 17. Four inch skin incision. Aponeurosis divided over canal, and freed back. Margin of conjoined tendon and Poupart's ligament developed ready for suture. Sac found and dissected free without disturbing cord. Ring takes three fingers. Sac sewed off, stump transplanted under transversalis and internal oblique. Conjoined tendon sewn to Poupart's over cord with four mattress sutures of kangaroo. External oblique closed with interrupted sutures of 1 chromic. Fat layer carefully approximated with same. Subtendinous silkworm-gut. Cunningham swathe.

Temperature was normal during entire stay in hospital. Patient suffered no discomfort and convalescence was uneventful. On August 2 headrest was allowed, and patient was discharged August 6, with wound solid and no bulging on cough.

CASE 2. Walter C., grocer, 47, entered the Boston City Hospital July 19, 1915. Was operated in this hospital for appendicitis with peritonitis 10 years ago. Developed hernia in scar, which was repaired two years later. Had second attack of appendicitis, reoperated three years later. "Chronic bronchitis" for years. Has had hernia in scar for seven or eight months, made worse by nagging cough. In this period it has been incarcerated twice, but each time reduced by physician. Is planning to go south in the early fall, and desires operation on account of danger of strangulation.

Poorly nourished. Signs of quiescent phthisis at right apex. Heart sounds distant and of poor quality.

Local: Wide bulging scar, impulse on cough.

Day after entrance, while walking down ward, collapsed. Seen in consultation by Dr. Robey, who found nothing to contra-indicate operation under local anesthesia, which was undertaken.

July 22, ellipse including scar excised, and much subcutaneous scar tissue dissected away. Aponeurosis of external oblique recognized, and freed from scar mass. Poupart's ligament developed, as well as edge of conjoined tendon. Small sac tied off without disturbing cord. Four mattress sutures of kangaroo tendon placed. Closure as in preceding case.

Convalescence agreeable and uneventful except that on fourth day patient had a coughing spell with rise in pulse and temperature, "like attacks I used to have," which subsided in a few hours. Otherwise pulse and temperature normal. Headrest August 10. Discharged August 13, with wound healed and no impulse to cough.

CASE 3. F. A. P., lawyer, 79, entered the Boston City Hospital July 21, 1915. Always well. Nine years ago operated for left inguinal hernia in this hospital. Two years ago right side operated by private surgeon for similar condition. One year ago attack of "cerebral hemorrhage," unconscious for one week. Comes in for recurrence of hernia on right. Painful. Cannot wear a truss. Earnestly desires an operation.

Senile, but well preserved and mentally acute.

General physical: Negative except for heart which is irregular in action, with presystolic murmur at base. Pulse high tension. Urine shows renal elements.

Local: bulging in scar in right groin.

Operation under local anesthesia, July 23. Scar excised. Fascial planes developed. Lower half of former repair found to be holding beneath cord. No sac found, but merely wide bulge of peritoneum of upper half. Conjoined tendon sewed over cord in Poupart's in upper half of wound with mattress stitches of kangaroo tendon. Closure as in preceding cases.

Convalescence agreeable and uneventful. Headrest August 10, up in chair two days later, and discharged August 14. Wound healed. No bulging on cough.

TECHNIQUE.

In the first patient a preliminary hypodermic injection of morphine-atropine was administered as a routine measure before my order to the contrary had been transmitted. The other two cases had no sedative before operation, and required none. In none of the cases was an opiate required at any time after operation.

With the instrument kit there was boiled up a glass jar of 150 c. e. capacity, to hold the anesthetic solution. Two syringes were put in a glass slip-joint syringe of the Luer type, holding 5 c. e., with two ordinary small hypodermic needles, and a slip-joint Record syringe holding 20 c. e., with two needles of larger diameter 2½ inches long, having rather obtuse points.

The solution used was half per cent. novocaine, made up in distilled water, and previously sterilized for 20 minutes in the autoclave. One hundred cubic centimeters of this solution were poured into the sterile jar, and 10 drops of 1-1000 adrenalin added. This solution can be used freely, it having been found that more than 250 c. e. can be injected without toxic effect. Actually, in this small series, the amount employed averaged a little over 50 c. e. per patient. For operative purposes it may be said that cocaine has been entirely discarded for this derivative, which has the advantages of comparative non-toxicity and sterilizability.

Everything was made ready in the operating room before the patient was wheeled in on the table. The skin preparation (benzine-iodine-Harrington's alcohol) was done without fuss, and the patient draped. The eyes were not covered. When it can be done conveniently it may be better to prepare and drape the patient before bringing him in.

Immediately, using the Luer syringe, the line of incision was injected by the endermic method of successive wheals. In the two recurrent cases a wide ellipse was outlined, to include the scar. No preliminary freezing of the skin was employed. If consideration is used in making the first injection, the others can be made rapidly and without pain, and a small syringeful used endermically will go a long way.

Braun has given up the method of anesthetizing the skin first, on the ground that it is unnecessary. He makes one wheal only, for the passage of the long needle, through which he in-

jects the subcutaneous tissue along the line of incision. But to completely anesthetize the skin by this indirect "conduction" method requires a considerable quantity of solution, penetrating to some distance on either side of the proposed line, and necessitates a certain wait for its accomplishment. I believe it to be true that if the line of incision is first injected endermically, the surface anesthesia will be more assured, much less solution will be required in the subcutaneous tissue, as a consequence of which there will be less distortion of the field, and the incision can be started without waiting as soon as the injection is completed.

The skin injection done, the long needle of the Record syringe was introduced through the upper end of the line of wheals and passed downward its entire length in the subcutaneous tissue, and while being withdrawn, a small amount of solution was introduced. Then without withdrawing it from the skin puncture, it was reintroduced at a deeper level several times at varying angles along and to either side of the canal. The bluntness of the needle was a safeguard against perforation of vessels, vas or peritoneum. The syringe was then refilled, and a puncture made at the lower end of the incision, and the cord and the region of the external ring similarly infiltrated. In the two cases of recurrent hernia the punctures were made not at the upper and lower ends of the incision line, but at the middle of the two lines forming the ellipse.

This having been expeditiously accomplished, it was found that the skin was insensitive, and at once ready for incision. The operative technique was that which seemed indicated by the condition found. The dissection, which had to be quite extensive in the recurrent cases, was done almost entirely by the blunt method, using the unopened dissecting scissors,—a procedure which was distinctly favored by the tissues being ballooned with fluid. Gentleness was used in all necessary manipulations, unnecessary instruments were kept out of the wound, and retraction was done largely with the fingers. There was practically no hemorrhage, owing partly, no doubt, to the fact that the vessels were avoided by the method of blunt dissection employed. The few bleeders met with were seized with mosquito snaps and tied off at once with fine catgut.

The first injection usually sufficed to carry us down to the cord and the peritoneal sac without any evidence of discomfort. A few cubic centimetres injected here, the amount depending on the manipulation necessary in the individual case, effectually controlled any sensitiveness. The deep stitches were placed well into Poupart's ligament without causing pain, and in closing up, no further injections were required.

The operative time averaged 50 minutes from the first injection to the completion of the subcuticular closing stitch. The patients went back to the ward in good humor, somewhat tired

from the restraint of maintaining the one position on a hard table, but ready for a lunch, and expressing satisfaction at the simplicity and painlessness of the procedure. Being men of some intelligence, and having each been operated on before, they were in a position to make comparisons.

CONCLUSIONS.

Novocaine offers a simple and satisfactory means of inducing anesthesia for the radical cure of inguinal hernia, even in complicated cases. The technic adds something in the way of difficulty to the surgeon who is not accustomed to the use of local anesthesia, but the advantages to the patient are sufficient to compensate for any extra care or effort required. It should be the method of choice in cases where contra-indications to general anesthesia exist, and it should be used in any ordinary case if the patient desires it.

Clinical Department.

STUDIES IN SPEECH DISORDER.

No. 4.*

ELIMINATION OF VOICE DEFECTS FOLLOWING ADENOID AND TONSIL OPERATIONS.

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BEFORE indicating the treatment sometimes necessary to perfect vocal expression after adenoid and tonsil operations, it will be *a propos* to say a word about tonsil overgrowth, adenoid obstruction, and the sounds thereby made impossible of production; that one may see just how vocal faults of articulation arise, how they become fixed habits, and how the vocal expert is needed to round out again and perfect the previously normal vocal execution.

The group of glands known as the adenoids, tonsils and the lingual tonsil form what laryngologists term the tonsillar ring. The adenoids are located above the uvula, and their overgrowth obstructs the passage of air into the nares. It naturally follows that when obstruction is complete, nasal breathing becomes impossible and any vocal utterances that require an open nasal passage for their production are no longer possible of execution. This vocal failure of execution may be of two forms, depending upon whether the patient's obstruction came before or after the learning of those utterances

that require the open nares. If the obstructing growth occurs before articulation has become set in its execution in the mind and the expressing mechanism, then, as long as the obstruction lasts, there can be neither memory nor experience of the proper vocal expression. If, on the other hand, the occluding obstruction has started its growth later in life, after vocal execution has become ingrained in its memory and vocal mechanism of execution, then during the obstructive period there still lasts, though becoming more or less dim as time passes, a memory for those previously executed vocal elements. The throat specialist sees the material obstruction, less worthy of note to him is the vocal occlusion; he weighs the dangers of the consequent mouth breathing as a means of receiving infection; he sees the general constitutional effects,—anemia, stunted growth, perhaps malnutrition; and, if the case has been of long duration, the retardation in the studies of the school, play a considerable part in leading the laryngologist to recommend operation. Not long ago a complete recovery from all the above-mentioned symptoms was promised, and often in glowing terms, but of late years experience has led the throat men to be more conservative. They have found that even after operation one or more of the above symptoms may persist, and among the most frequent are the mental backwardness and the faulty vocal execution.

Then diet, fresh air and exercise are recommended, which, of course, fail to reach the seat of the trouble, and these mental and vocal sides of the situation persist too often untreated thereafter.

What, then, are the vocal defects that persist after adenoid and tonsil operations; how shall their elimination be effected, and who is fitted to engineer that elimination?

The vocal defects resulting from nasal or laryngeal obstruction gather about the execution of "m," "n," "ng" and "k" and "g," and some of the vowels are changed slightly. The vocal execution of a normal "m" and "n" require closed lips, free buccal cavity and open nares. The normal "ng" requires closed lips, closed buccal cavity and open nares. Manifestly then, when the nose is blocked the sounds of these executions change, and this change is what is known as nasality.

With "k" and "g" the situation is slightly different. These sounds are made thus: "k" by an air explosion made when a closed larynx is suddenly opened by lowering the back of the tongue; "g" by the same technic as for "k," with the simple addition of vibration in the vocal cords. When tonsils and adenoids occlude these passages, "k" and "g," a nasal element is added to their usual sounds, not, however, quite so marked as when "m" and "n" are involved, but enough so to call it an approach to nasality.

Thus with overgrowths in these resonant chambers the patient is forced into enunciations that persist as long as the occlusions persist, and

* No. 3, see BOSTON MED. AND SURG. JOUR., Nov. 11, 1915.

this explains why they frequently continue after operations. The reason is because either never having learned the proper articulation or being so long forced into a faulty one, these continue on beyond the period when the obstructing tissue is removed.

From the above cases one sees there is quite a variety of defect that accompanies and follows the tonsil and adenoid hypertrophy. The treatment varies much with every case. Even some with the same defects have to be approached differently from others because of their different dispositions, and others differently merely because their ages differ. Otherwise it consists in reteaching vocal expression through imitation and didactic instruction, varying according to age and disposition. Much more than this it is difficult to put into the printed word, as it is more or less a matter of sound production and sound imitation, which obviously must be heard and cannot be printed. However, it sometimes takes a good study to determine by sound just what the present faults of utterance are, and still more ingenuity to instil the proper execution.

Summary. Operations for adenoids and tonsils often fail to relieve habits of faulty articulation and consequent school retardation. Vocal drill by one trained scientifically in speech disorder is the surest method to secure speedy permanent relief, in that perfect articulation that makes possible an easy enjoyable conversation.



Book Reviews.

Modern Medicine, Its Theory and Practice. Edited by SIR WILLIAM OSLER, Bart., M.D., F.R.S.; and THOMAS McCRAE, M.D. Vol. V, Diseases of the Nervous System—Diseases of the Locomotor System. Second edition, thoroughly revised. Philadelphia and New York: Lea and Febiger. 1915.

The fifth and last volume of this well known system has just appeared in its second edition. The contributors are essentially the same as in the first edition. The larger part of the volume, some eight hundred and seventy pages, is devoted to the discussion of diseases of the nervous system—some eighty pages suffice for the discussion of the various diseases of the locomotor system that have not been treated elsewhere. Dr. Harvey Cushing contributes an admirable chapter on "tumors of the brain and meninges" and another one on "hydrocephalus." Dr. Bernard Sachs has an excellent discussion of "syphilitic disease of the central nervous system." It

is needless to say that all the contributions bear the stamp of authority. The revised second edition of the fifth volume completes what is probably the best system of modern medicine in the English language.

Reports from the Laboratory of the Royal College of Physicians, Edinburgh. Edited by J. J. GRAHAM BROWN, M.D., and JAMES RITCHIE, M.D. Vol. xiii. Edinburgh: Oliver and Boyd. 1915.

This volume continues the valuable series of reports of researches from the laboratory of the Royal College of Physicians at Edinburgh, and represents the contributions of workers made during the years 1913 and 1914. In the preface acknowledgment is given of the generous financial support received by the laboratory from the Carnegie Trust for the Universities of Scotland. The volume consists of a series of thirty-two articles by eighteen authors, reprinted from various medical journals. These papers are grouped under the headings of protozoology, anatomy, biological chemistry, pathology and bacteriology. Particularly to be noted are the contributions by Meiklejohn on the topography of the intracardiac ganglia and on the innervation of the nodal tissue of the mammalian heart. The volume is abundantly illustrated. Particular attention should be called to the series of thirty cuts representing Fraser's and Diek's reconstruction model of the middle and inner ears. The volume, like those of the Rockefeller Institute for Medical Research, is an important medical contribution to the advancement of science.

Some American Medical Botanists Commemorated in Our Botanical Nomenclature. By HOWARD A. KELLY, M.D., LL.D. Delivered as a lecture before the Medical Historical Society of Chicago, 1910, and before the University of Nebraska, Oct. 16, 1913. Illustrated. Troy, N.Y.: The Southworth Company, 1914.

This book contains the subject matter utilized for lecture purposes by the author, himself a medical botanist of no mean calibre. All such efforts to awaken the interest of the busy practitioner in outside subjects are praiseworthy, particularly when they contain, as this book does in high degree, useful information carefully gathered and presented in readable fashion. Starting out with the life work of those physicians for whom flowers have been named, as the gardenia, wistaria and claytonia, the author gradually included thirty excellent and adequately illustrated biographies.

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THE MIDWIFE VERSUS THE PREGNANCY CLINIC.

As leading articles in this issue of the JOURNAL we are glad to present two papers on the midwife problem by two Boston physicians, representing two radically different modes of regarding and undertaking the solution of this important question. The first article, by Dr. A. K. Paine, reaches the conclusion that in view of the obvious deficiencies of training in obstetrics in this country, the best method of meeting the needs of the situation is to adopt the midwife system of Europe, placing it, however, under suitable regulation and providing adequate training for those who are to undertake this work. The second article, by Dr. James Lincoln Huntington, on the other hand, after pointing out the inherent evils of the midwife and the undesirability and impracticability of such training, describes the work of a well-

equipped pregnancy clinic, contrasting the merits of such a system, in conjunction with a lying-in hospital, with the disadvantages of the midwife method.

The midwife problem has been amply discussed in previous issues of the JOURNAL, both editorially and by authors of original articles on this subject. In the light of the argument presented by the two new papers under consideration, we see no reason to modify the attitude hitherto taken by the JOURNAL in condemnation of the midwife and in approbation of the pregnancy clinic system. On the contrary, it seems that the results already demonstrated in the work of the pregnancy clinics at the Boston Lying-in Hospital, at the Maverick Dispensary, and at the Peter Bent Brigham Hospital, to mention some of those in this city alone, demonstrate the superiority of an organized system of pregnancy supervision and out-patient care by competent young physicians and medical students under the supervision of a lying-in hospital staff. The education and regulation of midwives is a difficult and expensive matter. If adequately carried out, it involves not only a greater burden on the community, but the maintenance of a pernicious dual standard of obstetric competence. If not efficiently carried out, or if not carried out at all, it leaves the untrained, or ill-trained midwife as a perpetual menace.

The difficulties of maintaining and administering an efficient midwife system are illustrated by the experience of European communities where this has been attempted. The experience of Scotland, a large number of whose leading physicians have recently petitioned for the passage of a midwife bill for that country, can hardly be cited as an instance in point, since the circumstances of war now prevailing in that country, whereby a large number of medical practitioners have been called to the front, are not to be compared with those obtaining in a country like our own, or indeed, in any peaceful community in which the medical and nursing professions are abundantly filled.

The evils of the midwife system are recognized not only by the profession, but by many among the laity. In a recent issue of the *Chicago Tribune* there appeared an editorial comment on the midwife question, which summarizes in part as follows the comparative obstetric situation in Europe and in the United States:

"The midwife is a product of the Old World and it is among recent arrivals from Europe that

she plies her trade in Chicago. While there was, and still may be, room for the limited experience and the imperfect knowledge of the midwife in the peasant communities of Russia, Poland, or Galicia, there should be no room for a midwife in Chicago. In the peasant communities of the Old World one has to travel frequently twenty-five or thirty miles to obtain the services of a physician. To make such a journey by wagon—and railways are scarce in such regions—often may mean death to the patient. There the crude obstetric knowledge and experience of a midwife may save a life.

"In Chicago, where the patient is separated from the physician by the space of but a street car ride or an automobile run, the ministration of a midwife cannot be excused on the grounds of expediency. Her experience counts for naught in comparison with the physician's training. The most intelligent of midwives knows next to nothing about anatomy. No matter how clean she keeps herself she is ignorant of the laws of asepsis. She is useless or worse in the sickroom. Where the patient's condition is precarious the midwife is herself compelled to call a physician in order to save her own neck. Where, on the other hand, the condition of the patient is normal, the ministrations of the midwife carry with them at all times a menace of infection.

"The argument in favor of midwives is that they are economical, that they are used in families who cannot afford a doctor. That is no argument. Such cases should be provided for at hospitals and dispensaries. Another defense of the midwife is based on the ground that some women will submit only to the ministrations of a woman. But this defense, likewise, does not hold water. There are plenty of excellent women physicians in this city that can be called in just such cases.

"A ban upon midwives will result in hardships upon a number of individuals, who are now finding midwifery a profitable occupation. But the suppression of the irresponsible practice of medicine and obstetrics by ignorant women will do incalculable good to the community at large."

This editorial is of additional significance, coming as it does from the American city which has the highest percentage of midwife attendants. According to a recent report of Dr. Henry G. Ohls of the Chicago Health Department, there are in that city about 500 midwives who attend over 43½% of all births occurring in that city. In New York City there are 1300 midwives who attend 40% of the births. In Pittsburgh, 31% of the births are attended by midwives and in Philadelphia 21%.

In conclusion, it seems that while, under the conditions of life in many European and Asiatic communities, the midwife is, perhaps, an inevi-

table evil, her existence is inconsistent with the methods and ideals of civilization and of medical science in this country. This was the conclusion also reached at the recent conference on infant mortality at Philadelphia, noted in another column of this issue of the JOURNAL. That the midwife system has been introduced chiefly as a result of our large alien immigration is a misfortune; that it should be permitted to continue, or to be extended among our native communities seems not only undesirable, but a menace to the ultimate higher development of our civilization and science. It is not to be expected that the midwife system as it now exists should be abrogated unless it is to be replaced by a system in every way superior and preferable. As such a substitute, the pregnancy clinic system co-ordinated with a lying-in hospital seems wholly superior to a system involving the recognition, training and registration of the midwife as a permanent factor in the medical practice of this country. The midwife in America is an anachronism and an anomaly, and should not be tolerated, but eliminated as speedily as an adequate and efficient substitute system can be developed for the obstetric care of all classes of the community.

AN IMPORTANT PUBLIC HEALTH SERVICE.

IN last week's issue of the JOURNAL we noted the appointment of Dr. Haven Emerson to succeed Dr. S. S. Goldwater as commissioner of health of New York. The retirement of Dr. Goldwater from this important position marks the conclusion of a very valuable and notable service in the cause of public health. Although this service has lasted less than two years, there have been made during this brief time important advances in the activities, administrative methods and scope of purpose of the department. Dr. Goldwater accepted this position at great personal sacrifice, and, in relinquishing it to return to his duties as director of the Mt. Sinai Hospital, carries not only the gratitude and admiration of the community which he has served, but the appreciation of the medical profession for the nature of that service.

A recent issue of the *New York Evening Post* has expressed effectively the intelligent public opinion of Dr. Goldwater's work and of his methods in accomplishing it.

"The energy which Dr. Goldwater has put into his conduct of the Health Department, an energy which has seemed inexhaustible, has been manifested in two distinct ways, and it is difficult to say in which of the two it has been more remarkable. While the public has been hearing, at brief intervals throughout his incumbency, of extension after extension in the scope of the department's activities, it has had fully as much reason to be impressed with the unyielding vigor that he has put into the enforcement of the health laws and of the orders of the department. On the first head, a glance at the summaries of the department's activities issued at the close of last year, and at the close of the first half of the present year, is sufficient to remind us how much has been done. We can name but a very few examples, out of a large number. There have been established a Bureau of Public Health Education, a Division of Industrial Hygiene, a self-supported system of meat inspection—the cost being met by the assessment of firms selling the goods. We all remember the energetic sally of the department into a new field when it undertook to put a stop to avoidable over-crowding in the subways and on surface cars. The inspection of dairy farms had previously been left to the milk commissions of the various county medical societies; the department, feeling that it was responsible to the city for the safety of the entire milk supply, has instituted periodical examinations of these farms and their products. These, as we have said, are but a few samples of the extension of the department's work; and it ought to be added that, so far as we have noticed, every one of the multitude of extensions has been accomplished, not by the use of additional money, but by such effective improvement of organization as to make the new work possible without increase of expense.

"Of even greater interest than the undertaking of new work is the vigor, intelligence, and determination which have evidently been put into every feature of the department's activities. Any one who regularly sees the weekly bulletins of the department must be struck with the live character of their contents. They are full of interest, and cannot fail to be of great practical utility; especially now that the number issued has been increased to twelve thousand, so that they are sent regularly to every practicing physician in the city. The vigor and success with which the campaign of the department against patent medicine evils has been carried on during the past few months is perhaps the most recent reminder of the spirit in which it is doing its work. And all along the line, it has come to be known that when the Health Department says a thing it means it, and that its force is so well organized as to enable it actually to do what it either promises or threatens."

On November 6, at the conclusion of Dr. Goldwater's term of office, a testimonial dinner to him was given by officials of the Health De-

partment of New York City. Among the speakers who expressed their appreciation of the work of Dr. Goldwater as Commissioner of Health were Commissioner Emerson, Dr. Charles F. Bolduan, Dr. Matthias Nicoll, Jr., Assistant Corporation Counsel William J. Millard, Dr. Charles B. Slade, Dr. William H. Park, Dr. S. Josephine Baker, Dr. Robert J. Wilson, Dr. L. I. Harris, and Mr. Ole Salthe. Dr. Goldwater, in response, outlined his conception of the work of a modern health department as one which, more than ever, would serve for the maintenance of good health rather than temporize with attempts to cure ill health.

A service such as Dr. Goldwater's, though brief, is of importance in the history of the development of public hygiene and of preventive medicine in this country, since it contributes to the establishment, not only of administrative methods, but of a standard of achievement, purpose, and progress, that will be of value to the future, as it has been of benefit in the past and present.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS IN OCTOBER, 1915.

THERE has been an increase in the number of cases of communicable diseases in Massachusetts for the month of October. This increase is an annual event. It is always coincident with the opening of the public schools. In comparison with the same month last year, the total of communicable diseases reported to the boards of health shows considerable increase. An analysis of the reports shows that the greater prevalence of whooping-cough in various parts of the state is largely responsible for this increase.

Whooping cough has been prevalent in many parts of the state. The difficulty of early diagnosis and efficient quarantine in this disease is largely responsible for its continued spread. Some practical work is being done by the New York City Department of Health as to the use of a vaccine for this disease. Results of their studies will, no doubt, soon give out some important facts to help us in our control of this infection. While there have been no epidemics in any particular city or town, in a few places it has been particularly prevalent. Among those places may be mentioned Cambridge, Province

town, Chelsea, Lawrence, Waltham, Natick, Northampton and Whately. Springfield has been having a considerable number of cases for several months, but they seem to be decreasing.

The diphtheria situation is of interest. A comparison with October, 1914, shows that there are about the same number of cases this year. One fact, worthy of note, is that they do not seem to be so fatal this year. The fatality rate last year was 6.7 and this year 3.8. While this is gratifying, yet it is no insurance that the infection may not become virulent at any time. There have been no marked epidemics of diphtheria during the month. However, the disease has been particularly prevalent in the following cities and towns: Attleborough, New Bedford, Haverhill, Malden, Rockport, Saugus, Lawrence, Lowell, Waltham, Fitchburg, Hudson, Leominster, Shirley and Agawam.

The spread of diphtheria seems to be definitely along certain lines. The comment by one of the District Health Officers in reporting a diphtheria investigation seems to apply almost generally to the state. He says, "This outbreak shows the usual cycle of unrecognized cases with the physician called late, the extension of the disease by contact with others in the immediate neighborhood, and the spread of the disease in the school." An analysis of the reports coming to the department show that this seems to be true in almost all of the considerable outbreaks reported. The common practice of closing the schools is not so effective as keeping them open, when adequate medical inspection of the schools can be made daily. Our more exact knowledge of the disease and more scientific use of the culture method, plus the application of the Schick test, should enable us to work out a more efficient procedure in controlling this disease.

The typhoid fever situation continues to be favorable. As usual, there is some increase over September. In this disease the fatality seems to be slightly higher than for the same month last year. The following cities and towns have had more typhoid fever than usual: Pittsfield, Somerville, Lexington, Quincy, Bridgewater, Northbridge, Chelsea and Lowell.

Two particular foci are of interest. Northbridge has had an epidemic of 18 cases, in which the result of the investigation seems to point to the milk supply of one man. However, in this outbreak, there is a possibility of water-borne infection. For fire purposes polluted water is used in the domestic water supply.

Mansfield continues to have some cases of typhoid fever. The beginning of the prevalence of typhoid fever in this town dates back about two years. As in the former epidemic, the mode of transmission is probably milk. The evidence seems to point to the infection coming from a carrier of 45 years' standing.

MEDICAL NOTES.

AMERICAN ASSOCIATION FOR STUDY AND PREVENTION OF INFANT MORTALITY.—The sixth annual meeting of the American Association for Study and Prevention of Infant Mortality was held at the Bellevue-Stratford Hotel in Philadelphia Nov. 10, 11, and 12, under the presidency of Mr. Homer Folks of New York. Among those present from New England were: Mrs. William Lowell Putnam of Boston, Prof. John L. Morse, Drs. Richard M. Smith and J. Herbert Young of the Department of Pediatrics in the Harvard Medical School. Mr. George Bedinger and Mr. Charles Mason represented with Dr. Young the Boston Milk and Baby Hygiene Association. Dr. Buckingham of Boston, Dr. A. B. Emmons, 2nd, of Boston, Dr. J. L. Huntington of Boston, Dr. Harold J. Everett of Portland, Me., and Mr. Richard Borden of Fall River, were also in attendance.

In the section of Obstetrics papers were read as follows: "The Education, Licensing, and Supervision of the Midwife," by Dr. J. Clifton Edgar of New York; "Is the Midwife a Necessity?" by Dr. J. M. Baldy, of Philadelphia; "Progress Toward Ideal Obstetrics," by Dr. Joseph B. DeLee of Chicago. These authors all agreed on one point, namely, that all efforts should tend toward the eventual elimination of the midwife.

At the conclusion of the meeting very radical resolutions were introduced, aiming towards the recognition of the midwife by legislative means. This was referred without discussion to the Committee on Resolutions to report back to the Executive Committee of the Association at its next meeting in January, 1916.

NATIONAL MEDICAL EXAMINATION DAY.—In a plea for every man and woman in the United States of adult age to join in a movement for annual or other periodic medical examination of themselves, which will be initiated on December 5, the National Association for the Study and Prevention of Tuberculosis presents figures in a Bulletin issued recently which show that practically 100% of the supposedly well people of the United States over 30 years of age have some physical defect or impairment. About 70% of these impairments are of a more or less serious nature. There are besides about 30% of defects of a minor character.

The figures which the National Association

presents are based upon the careful studies recently made by the Life Extension Institute among two highly specialized groups of people, the first group consisting of workers in the Ford Motor Company of Detroit, and the second group consisting of employees of commercial houses, banks and trust companies in New York. The records of these examinations show that practically none of those examined,—men and women—are normal in the strict sense of the word. Another striking fact in the examination is that only 10% of those who were impaired were aware that there was anything the matter with them. This fact alone, the National Tuberculosis Association points out, is sufficient to make every man and woman in the United States give careful consideration to the necessity for at least one physical inventory of the entire body a year.

The largest group of more or less serious impairments discovered were those showing sugar, albumen or casts in the urine. More than 45% of the above-mentioned groups showed defects of this nature. In the same groups about 23% showed abnormal blood pressure, while nearly 27% showed combined disturbances of circulation and kidneys. Organic heart disease, thickened arteries, lung trouble leading to possible tuberculosis, nervous affections, digestive troubles and venereal disease were among the other impairments discovered, practically all of which had escaped the notice of the individuals examined.

During Tuberculosis Week, which will be celebrated throughout the United States from December 6 to December 12, a national medical examination day will be observed on December 8. Groups and individuals will be urged to make arrangements for physical examination on that day. A circular describing in detail how the advantages of medical examination day may be obtained and indicating certain physical impairments which everyone should look for, will be sent on request from the office of The National Association for the Study and Prevention of Tuberculosis, 105 East 22nd Street, New York City.

PREVALENCE OF MALARIA, MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for October 29 states that during the month of September, 1915, there were in Virginia 2663 cases of malaria, 21 of cerebrospinal meningitis, 64 of pellagra, 17 of poliomyelitis, 25 of smallpox and 825 of typhoid fever. During the same period there were in Ohio 12 cases of meningitis, 153 of poliomyelitis, 38 of smallpox and 655 of typhoid. In South Carolina there were 143 cases of malaria, 33 of pellagra, and 134 of typhoid. There were 49 cases of poliomyelitis and 28 of smallpox in Minnesota and 167 cases of typhoid in Michigan.

POST-GRADUATE MEDICAL TEACHING IN PHILADELPHIA.—It is announced in the issue of *Science* for November 5 that over one hundred physicians of Philadelphia have joined in the formation of a coöperative association for post-graduate teaching of medicine in that city. The president of this organization is Dr. David Reisman, and the secretary Dr. George P. Müller. It is planned to establish a central bureau with a permanent secretary where the clinical and didactic opportunities of the city will be tabulated and correlated for the benefit of visiting students and graduates.

CONFERENCE OF TUBERCULOSIS WORKERS OF NORTH ATLANTIC STATES.—The opening session of the second annual conference of tuberculosis workers of the North Atlantic States held at Albany, N. Y., was given to the discussion of the subject "Tuberculosis and Industry." Addresses were made by members of the New York City Health Department, the American Association for Labor Legislation and statisticians of various large life insurance companies.

THE HOSPITAL SHIP "ANDROSCOGGIN."—In several issues of the JOURNAL last winter we commented editorially on the service of the revenue cutter *Androscoggin*, which was equipped as a hospital ship for fishermen and cruised for several months about the fishing banks and off the coast of Newfoundland and Nova Scotia. The value and importance of the service done by this ship in the prompt care and relief of sickness and injuries among fishermen has fortunately led to the intention of equipping her again for similar service during the coming winter. The hospital facilities aboard the *Androscoggin* have been enlarged and otherwise improved and on November 6 she sailed again from Gloucester for her initial cruise of the season. She will be at sea except when calling at Halifax for coal and water or to land patients for care in hospitals ashore. The ship is in command of Captain Van Boskerck.

DURATION OF IMMUNITY FROM SMALL-POX BY VACCINATION.—In a recent issue of the *Weekly Bulletin* of the Health Department of New York City, Dr. W. H. Park reports the results of investigations regarding the length of time of small-pox immunity conferred by a successful vaccination. He states that there are two means of judging this: the first is thorough observation of those who, having had a successful vaccination, are later exposed to small-pox, and the second, the duration of immunity to vaccination with vaccine virus. From statistics carefully compiled by the United States Public Health Service for a period of three years the following figures are obtained. Of 18,953 cases of smallpox, 798 had been vaccinated within

seven years preceding attack, 1,632 were vaccinated more than seven years preceding attack and 16,523 were never successfully vaccinated. It is calculated that 99.9% of persons who have never been vaccinated will "take" if vaccine is of high potency. As to the duration of immunity judged by revaccination, Lesechier finds that after one year 28% of persons become susceptible; after five years 50% become susceptible and 85% after ten years. Occasionally persons are met who can be successfully vaccinated at the end of six months. Dr. Park, therefore, draws his deductions that it is wise for anyone exposed to small-pox to be vaccinated, if a successful vaccination has not been obtained within nine months, and that the general population should be vaccinated about every five years when small-pox is at all prevalent. Even when the disease is absent all persons should be vaccinated in infancy and again in childhood so as to keep the population moderately immune and so prevent a sudden development of an epidemic.

EUROPEAN WAR NOTES.

EQUIPMENT OF FRENCH HOSPITAL TRAINS.—Report from Paris on November 1 states that a number of Americans, resident in that city, have interested themselves in the reorganization of the French hospital service, particularly the re-equipment of hospital trains for transporting the wounded from the front.

"The first step in improving the service was the addition to every train of a car equipped with an operating table and surgical supplies, so that wounded soldiers might be treated during the journey from the front to the permanent hospital, perhaps hundreds of miles away.

"One of the first cars so attached to a train was a freight car rebuilt at the expense of Mrs. Washington Lopp. She contributed the money to Commandant F. Loiseleur, in charge of the temporary hospitals at each of the railway stations of Paris, and of the construction yards of the state railway, and then requested other of her friends to provide money for the same purpose.

"To date a number of Americans have helped, one car having been fitted up by money sent from Hawaii, through Dr. James R. Judd and friends. Among other Americans thus contributing are Walter B. Hardy of Chicago and Mrs. Emory R. Johnson of Philadelphia. As a result of the rebuilding of these first freight cars for this purpose, to date not less than 50 cars have been remodeled with money contributed by individuals of cities of France. So great has been the use of these cars to the military surgeons that the War Department has authorized the placing of one with each of the 250 hospital trains now in service in France.

"Stimulated by the example of these Americans, Madame Marguerite Carre, the wife of the director of the Comédie Française, has just

equipped an entire train of 14 cars with money she collected. This magnificent train, known as the Carre train No. 15, is believed here to be the model hospital train of the world. The train has just made its first trip to the front, in charge of Dr. T. Tizon, who has been in service more than a year. He has stated that 300 wounded carried in the train were transported under admirable conditions, and without the loss of a single life.

"Service as physicians and nurses in these trains promises to become as popular among helping foreigners as that in the hospitals and ambulance corps.

"The friends of France among the allied and neutral nations now serving in the hospitals and ambulance corps number no less than 7000, of whom 2000 are Americans."

INFANT MORTALITY IN IRELAND.—The losses of life occasioned by the war seem already to have aroused the apprehension of publicists in the European countries on account of the inevitable decline in population which will ensue. In Ireland this apprehension seems to have given impetus to the attempt to reduce infant mortality in the hope of thus combating the depopulating effect of the war. This action is illustrated by the following extracts from the circular issued by the Women's Health Association of Ireland and widely distributed in that country.

"The ravages of war are rapidly thinning out the best young manhood of our nation. Tens of thousands in the prime of their days have gone forth to return no more. How are their places to be filled in the rising generation?

"It can be done by reducing the high rate of infant mortality in the towns of Ireland, and by preventing preventable illness amongst the growing children.

"But the war has already rendered this task doubly difficult. This is how it stands:

"Infant mortality, always far too high even in normal times, has increased since the war started. In Dublin it rose during the first quarter of the present year from an average of 145 to 181 per thousand. And this is not to be wondered at, for every bullet that kills a soldier wrecks two lives—his own and the life of the woman who loves him. And if that woman is the mother of his infant child its life too may be claimed by the same shot.

"Thus war, which claims the life of the soldier, by the privations, anxieties and sorrows which it brings upon his wife, often unfits her for the function of healthy motherhood, and the infant or unborn child is another victim in the national sacrifice.

"The Rt. Hon. Herbert Samuel, late president of the local government board, in a recent speech, estimated that in many districts a third of our possible population never survive their first year. To remedy this to some extent the government has decided to provide a grant for paying half the expense of duly approved organizations, such

as schools for mothers, infant welfare centres, infant clinics, etc. This is all aimed at training the mothers to save their little ones from death or a maimed life, to which ignorance on the mother's part so often dooms them.

"This is all the more necessary in Ireland where there is no medical school inspection, and no school medical officers to watch over the health of the children, and where the school buildings are often overcrowded and insanitary.

"It is, therefore, all the more necessary to watch over the health of the children in their infant years.

"In Dublin the average death-rate among infants under 1 year per every 1000 births for the last five years stands at 146, in Belfast 144, in Waterford 140, in Cork 121, and in 27 other towns in Ireland 132."

AMERICAN WOMEN'S WAR HOSPITAL.—It is announced that the makeup of the completed staff of the American Women's War Hospital, Oldway House, Paignton, South Devon, England, is as follows: Dr. D. Pearce Penhallow, chief surgeon; Dr. Fred C. Collier, assistant chief surgeon; Dr. James E. Daniel, Dr. Harold M. Frost, Dr. Russell P. Borden and Dr. Harold M. Goodwin, assistant surgeons; Dr. Arthur Casselman of the University of Pennsylvania, internist and bacteriologist.

INJURY TO KING GEORGE.—An item in a recent issue of the *Lancet* makes the following official statement about the recent accident to King George by a fall from his horse in France, which is evidently more serious than reported in the papers, since the King has been confined to bed for some days. The *Lancet* states, "There is no evidence whatever of any visceral lesion, or any fracture. Although the King is still confined to his bed, this is necessitated solely by a muscular stiffness."

THIRD HARVARD SURGICAL UNIT.—The third Harvard surgical unit, whose organization has been noted in recent issues of the JOURNAL, sailed from New York aboard the steamer *Noordam* on Wednesday of this week, Nov. 17. Its ultimate destination is not announced, but it will be landed first at Falmouth, England. Among the surgeons who have volunteered for service with this unit is Dr. Sir Wilfred T. Grenfell of Labrador. The unit will be in charge of Dr. David Cheever of Boston. The personnel of the unit consists of thirty-six nurses and the following physicians in addition to Dr. Cheever and Dr. Grenfell: Dr. John L. Bremer of Boston, Dr. Bronson Crothers of Cambridge, Mass., Dr. Abram L. Van Meter, Dr. John F. Dillon, Dr. H. R. McNair, Dr. Frank A. Smith, Dr. R. S. Catheron, Dr. A. A. Halliday, Dr. E. B. Towne, Dr. W. D. Jack, Dr. George Benét, Dr. E. W. Fiske, Dr. F. B. Abbott, Dr. L. R. Hill, Dr. W. O. Wilder, Dr. A. Gale Straw, Dr. E. O. Thomas, Dr. John C. Phillips, Dr. George Os-

good, Dr. George M. Watson of Manchester, N. H., and Dr. Macy Brooks of Philadelphia.

CHOLERA IN GERMANY.—During the week ended October 2 there was in Germany only one fatal case of Asiatic cholera which occurred at Kiel. There has been no genuine epidemic of this disease in Germany since the outbreak of the war and it appears that for the present season the sporadic incidence of the disease is probably at an end.

WAR RELIEF FUNDS.—On Nov. 13 the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund	\$277,704.36
American Ambulance Fund	63,292.00
Serbian Fund	37,280.05
Allied Fund	25,120.37
French Fund	23,153.56
St. George's Fund	12,085.54
LaFayette Fund	11,749.99
Armenian Fund	8,981.45
Surgical Dressing Fund	7,889.00

NEW ENGLAND NOTES.

SYPHILIS AS A PUBLIC HEALTH PROBLEM.—In the September number of the Public Health Bulletin issued by the State Department of Health, Dr. A. J. McLaughlin takes up the matter of syphilis as a public health problem. He states that he regards it as one of the most pressing public health problems of the time. He gives as reasons why it has not been treated as such the following:

1. There are no reliable statistics of the prevalence of the disease.
2. It is looked upon as a social disgrace to contract syphilis, and desire for concealment often causes the patient to neglect proper treatment or to fall into the hands of quacks and charlatans.

3. Among the poor and those in moderate circumstances the cost of salvarsan is often prohibitive.

Therefore, he believes that the State Department of Health should work toward the control of the disease in the following manner.

1. The disease should be reportable in a modified way.
2. Wassermann tests should be made free of charge by the State upon requests of physicians.
3. Salvarsan should be furnished free by the State to physicians for cases reported by number which have been found positive in the State Wassermann Laboratory.

The request of sanitarians to have cases of syphilis reported is not prompted by a desire to exercise quarantine powers over the individual but rather to secure statistical information which will aid in combating the disease. It is, therefore, unnecessary to give the name and address

but the reporting physician can report by number, giving all other interesting data.

This number can then be replaced by a serial number given by the State Department of Health and the physician then requested to make further reports or references under the serial number.

The Wassermann Laboratory of the State Department of Health began its work on June 1, 1915, and is now examining over 1000 specimens each month.

PREVALENCE OF DIPHTHERIA IN MASSACHUSETTS.—During the past month of October there has been in Massachusetts, a slightly increased prevalence of diphtheria over that of the corresponding month last year. It appears that the disease generally has its maximum incidence during this month. In October, 1914, there were 1,148 cases of diphtheria, with 77 deaths and in October, 1915, there were 1,175 cases with 44 deaths. In September, 1915, there were in Massachusetts only 598 cases of the disease. During this month 638 examinations of cultures were made at the State Laboratory and in October over 2,300 cultures were examined. The cities and towns in which diphtheria has been most prevalent during the past month are Agawam, Amherst, Attleboro, Brockton, Fitchburg, Haverhill, Hudson, Lawrence, Leominster, Lowell, Lynn, Malden, New Bedford, Revere, Rockport, Saugus, Shirley and Waltham.

MENTAL HYGIENE CONFERENCE AND EXHIBIT.—The mental hygiene conference and exhibit which was announced in last week's issue of the JOURNAL, is at present in progress in this city under the auspices of the Massachusetts Society for Mental Hygiene. The exhibit in Kingsley Hall, Ford Building, is one of the most elaborate ever shown on this subject. In a series of sixty charts is represented the ratio of mental disease in Massachusetts and in the United States, the causes of mental disease and the means of its prevention. A special group of charts demonstrates the social service and outpatient work done for psychopathic and nervous patients in the various state hospitals. There is an industrial display from fifteen of these hospitals exhibiting weaving, rug making, brass and clay work and other forms of occupation employed in the treatment of mental and nervous cases.

DETENTION OF A LEPER IN BOSTON.—A case of leprosy has been discovered in Boston and reported to the Department of Health. The patient, a Greek, was employed in a small restaurant in the West End and had been going regularly to one of the public hospitals for treatment. When the nature of his disease was definitely determined, the health authorities were notified and the man sent to the Southampton Street Detention Hospital, later to be sent to the leper colony on Penikese Island. He came to

this country from Greece three and a half years ago and has been in this city ever since. The other employees of the restaurant and the occupants of the house where the patient lived are under observation by the health department.

RESIGNATION OF DIRECTOR OF MILK AND BABY HYGIENE ASSOCIATION.—George R. Bedinger, director of the Milk and Baby Hygiene Association, has resigned from that position to become executive head of the Children's Aid Society of Detroit.

APPOINTMENT OF SCHOOL PHYSICIAN.—It is announced that Dr. Mary T. V. Moore, physician in charge of the baby clinic at the Massachusetts Homeopathic Hospital, has been certified by the Civil Service Commission and received her appointment by the Boston School Board as physician under its new organization.



Obituary.

GRACE WOLCOTT, M.D.

DR. GRACE WOLCOTT of Boston died suddenly on Nov. 9, at Heath, Massachusetts. Dr. Wolcott was the daughter of the late John Wesley and Henrietta Louisa Tracy (Eustis) Wolcott, and was born in Roxbury Feb. 15, 1858. She studied medicine at the Women's Medical College of Pennsylvania, from which she was graduated in 1884, later taking a post-graduate course at the Philadelphia Polyelinic and subsequently going to Vienna and Paris for more extended study. Dr. Wolcott had been a practising physician in Boston since 1884. She was a member of the American Medical Association, the Massachusetts Medical Society and the Boston Medical Library.

Dr. Wolcott's greatest contribution to women's work in medicine was her share in establishing Trinity Dispensary and the Vincent Memorial Hospital. Trinity Dispensary was the first dispensary to be established to be open evenings, and this offered an opportunity for working women to get medical advice without losing time and wages. Later to give further care to the same people, she helped to establish the Vincent Memorial Hospital. To both of these institutions she gave most devoted and wise service for about twenty years. For all who assisted or followed her, her standards of work were most stimulating.

In 1912, when Dr. Wolcott retired from active medical work at the hospital, she was made consulting physician and a member of the board of managers. At her camp in Heath, where she long had had patients, she was one of the first to try the system of providing occupation for nervous patients, a plan which is now in general use. She was a member of Trinity Church and was deeply interested in all its activities.

Dr. Wolcott's profession and her religion dominated her interests and her relationships. She was pre-eminently a physician alike of bodies and of souls. Radiantly alive herself, she rejoiced in all forms of life; and her keenest pleasure lay in spending herself that she might give fostering care to all living things from the blade of grass through all nature up to humanity. Strength mated with tenderness, faith and joy, boundless courage, unstinting devotion, marked her glowing personality, filling her with the life abundant, and so making her communicative of it to all who came under her care and influence. She had not been well for some time and had decided to spend the winter at Heath. There her earthly life came to an end; and with a swiftness and directness characteristic of all she did, she passed into eternal peace.

Miscellany.

INCREASE IN COST OF DRUGS.

THE continued increase in cost of drugs has progressed steadily since the latest note on the subject in the JOURNAL of November 4. Report from New York on Nov. 5 states that the cost of quinine, potash preparations and all narcotic drugs has advanced even more rapidly than that of other pharmaceutical and chemical products.

"Quinine scored its most sensational advance on the present upward movement this week when prices rose to \$2.50 and \$2.75 an ounce from a basis of \$2.15 an ounce. The advance from the normal basis of 26 cents an ounce will probably go further as cable advices received from London state that the British Government has just placed quinine sulphate on its list of prohibited exports in order to prevent depletion of its own supplies. This vital development in the quinine situation leaves the United States dependent upon its own domestic production, which amounts to only 1,500,000 ounces of quinine annually, or only one-half as much foreign sulphate as is imported into the United States annually during normal times, that amount being 3,000,000 ounces.

"The heavy consumption of quinine for the war has, of course, been the principal factor in the rise in the article. All of the European belligerents have been in the domestic markets for amounts beyond credence. It is said on reliable authority that more than 500,000 ounces of domestic and foreign quinine sulphate have been exported since the commencement of the European War, but verification of these figures is impossible, as exporters have in many instances refused to declare the identity of the commodity offered for export or have resorted to the subterfuge of concealing the name of the drug under a proprietary name.

"The conditions which brought about an advance in quinine prices to \$5 and \$6.50 an ounce during the Civil War bid fair to be duplicated here within the next few weeks. The American salts makers are utilizing all their stocks and current output in filling outstanding contracts and have been forced to decline to book any new business. The local market continues bare of Java and Amsterdam salts at any figure, and German salts have long been unobtainable in this market.

"In order to gain an idea of the present position of the article it is well to remember that cinchona bark, the basic material, has advanced from 15 to 25 cents a pound. It is understood that the allotments of bark to domestic manufacturers by Java bark growers have been very small. Import figures for the first eight months of the current year to the end of August indicate a falling off to only 2,736,690 pounds of bark as against 3,230,985 pounds in the corresponding ten months in 1914, and 3,944,509 for the calendar year ended December, 1914. The material diminution in the shipments of cinchona bark from Java, together with the cutting off of the output of the large German factories which formerly produced 7,000,000 ounces of quinine annually, may again lead to the usage of the native South American Peruvian bark which is found in a belt 100 miles wide by 2000 miles long, extending through Venezuela, New Granada, Ecuador, Peru, and Bolivia.

"All the various manufacturers of mercurial preparations have been forced to advance prices eight cents a pound on the 'hard' and three cents a pound on the 'soft' in consequence of the high cost of quicksilver. This is the third advance announced in mercury preparations since June 28 last and prices in fifty-pound lots in one delivery for hard mercurials are now given by the manufacturers; as calomel, \$1.51 a pound; corrosive sublimate, powdered, \$1.38 crystals, \$1.43; mercury bisulphate, \$1.29; precipitate, ordinary and powdered, \$1.64 and \$1.74, respectively; white precipitates, ordinary and powdered, \$1.74 and \$1.79 respectively. The soft mercurials are now quoted in fifty-pound lots in one delivery at: blue mass, 75 to 77 cents mercury and chalk, 77 cents; mercurial ointment (one-half mercury), 93 cents a pound citrine ointment, 75 cents a pound.

"An unprecedented upheaval of drug and chemical market conditions has taken place in nearly all other products and has carried price with few exceptions to the highest point in history. Practically every drug and chemical product known to modern science has at least double in price since the commencement of hostilities Europe, and some products have risen as much as 3000%. In cases where the import movement of drugs and chemicals from Europe, Russia in Asia, Turkey, Egypt, Japan or China has not been entirely suspended, the amounts such commodities being released by the fact-

at the seats of production are so small as to be considered of negligible importance.

"American manufacturers of finished and semi-finished drug products have been forced to advance quotations on every conceivable material in order to protect themselves against further advances in costs of crude materials caused by scarcity and high prices of labor abroad. This has brought about an upheaval in conditions such as has never before been witnessed, and in many instances makers have entirely withdrawn their offerings in order to prevent supplies from reaching the hands of speculators. The latter interests have been and are still reaping a harvest of dollars, in their capacity as middlemen for purchasing agents of the Allied Governments.

"A sensational advance has taken place in all narcotic drugs, following the realization on the part of all domestic handlers that the unabated bombardment of Constantinople by the Allied fleet, as well as the cutting of the Nish-Salonica railway by the Teuton Allies renders present opium stocks impossible of replacement. Druggist's quality gum opium has been advanced 25% within the past few days and now commands \$10.25 per pound, while powdered opium is selling at \$11.25 and \$11.50 and granular at \$11.50 and \$11.75 per pound. While import statistics would indicate little concern over the position of opium, imports for eight months ended in August last having totalled 298,270 pounds of the value of \$1,456,816 against 258,704 pounds of the value of \$1,141,132 in the same time in 1914, there has been a steady diminution in the supplies in United States bonded warehouses, as well as in the hands of dealers, owing to the export demand, both for opium derivatives and for the gum itself. The stock of opium containing 9% or over of morphia in United States bonded warehouses on July 1, last, stood at 92,997 pounds of the value of \$394,088. The stocks of opium in bonded warehouses on Sept. 1 had declined to 67,687 pounds of the value of \$293,658, a decline of \$100,430 in value. A corresponding shrinkage was noted in the stocks in dealers' hands.

"In view of the greatly increased cost of opium, domestic manufacturers of all of the derivatives therefrom have been forced arbitrarily to advance their prices in order that they might bear their approximate proportion of cost of the newly established value of sulphate of morphine and codeine. Thus quotations for morphine sulphate have been advanced 50 cents an ounce to a basis of \$5.50 an ounce for 5-ounce cans, \$5.55 an ounce for 1-ounce cans, \$5.75 an ounce for $\frac{1}{2}$ -ounce vials in $\frac{1}{2}$ -ounce boxes, and \$5.80 an ounce for $\frac{1}{8}$ -ounce vials in 1-ounce boxes; while morphine acetate and morphine alkaloid in $\frac{1}{8}$ -ounce vials have been advanced to a basis of \$7.15 an ounce in 25-ounce lots. Codeine sulphate also has advanced to the extent of 50 cents an ounce, and \$6.95 is now asked for sulphate and hydrobromide of codeine,

in $\frac{1}{8}$ -ounce vials. The new schedule on codeine alkaloid and other salts is much higher than that on the sulphate, sellers naming \$8.60 for alkaloid, \$7.80 for acetate, chloride and nitrate, and \$6.55 an ounce for phosphate and salicylate. Other morphine derivatives in 10-ounce lots are advanced to \$6.70 for diaetylmorphine hydrochloride, \$7.35 for diacetylmorphine alkaloid, \$7.90 for ethylmorphine hydrochloride, and \$16.80 for apomorphine hydrochloride. No contracts or orders calling for forward deliveries are today being entered by manufacturers at these figures, but the makers are busy accepting orders for prompt deliveries at these quotations."

Correspondence.

A STUDENT'S POINT OF VIEW.

BOSTON, November 5, 1915.

Mr. Editor: It has been my observation in the various hospitals in which I have worked as a student, that many medical men appear to look on surgeons as knaves who will operate on anyone on whom they can lay their hands, and that they, therefore, hesitate greatly in sending patients to them. Some surgeons, on the other hand, seem to regard medical men as fools, and, feeling that they are themselves competent to treat any medical case, will not transfer cases for treatment to their colleagues. The result is that there are patients in our hospitals who suffer because of the lack of an all-round view on the part of men having their care. One cannot help feeling that, had the physicians and surgeons taken hospital appointments which included some medicine and some surgery, each would have been more lenient to the other.

Furthermore, despite the fact that "the day of the general practitioner is over," a canvass of three recently graduated classes of the Harvard Medical School shows the following figures:

Total number heard from..... 86

Hospital Appointments.	Additional Hosp. Appointments.
Medical 27	Children's obstetrical and contagious 1 Obstetrical 3 Gynecological and obstetrical..... 1 Children's 1
Surgical 26	Mixed 1
Mixed 27	Surgical 1 Children's 1 Children's and obstetrical..... 1
Path. None	1 5

Doing a general practice.....	46
"Work largely surgical".....	1
"Institutional work including both medicine and surgery"	1
"Medicine and surgery"	1
"Some minor conditions any M.D. can treat (not really surgical) come into my practice"	1
	50
Doing medicine now	18
(One on a "mixed" training)	
Doing surgery now	8
(One on a "mixed" training)	

Doing medicine and obstetrics.....	1
Doing surgery and obstetrics.....	2
Doing eye, ear, nose, and throat	1
Doing laboratory work	5
Not practicing	1
	—
	36

Of the 50 men who are, to all intents and purposes, doing a general practice.

26 took mixed appointments.	<i>Additional Appointments.</i>
15 took surgical appointments.	{ Obstetrical 1
	{ Mixed 1
7 took medical appointments.	{ Children's, obstet., plus contagious.. 1
1 took surgical plus medical.	
1 took no appointment.	

the admission cards sent them after their applications are filed. Tintypes or proofs will not be accepted.

This examination is open to all men who are citizens of the United States and who meet the requirements. Persons who meet the requirements and desire this examination should at once apply for Form 1312, stating the title of the examination for which the form is desired, to the United States Civil Service Commission, Washington, D. C. Applications should be properly executed, excluding the medical and county officer's certificates, and filed with the Commission at Washington in time to arrange for the examination at the place selected by the applicant. The exact title of the examination as given at the head of this announcement should be stated in the application form.

AUTHORS' EVENING.

The Fourth "Author's Evening" of Ten Papers, "A Second Contribution to the Neurology of Childhood," by Walter B. Swift, M.D., and assistants; C. A. Osborne, M.D., Ph.D., second assistant; Miss Jennie Hedrick, voluntary assistant, AT THE VOICE CLINIC, PSYCHOPATHIC HOSPITAL, 74 FENWOOD ROAD, NOVEMBER 19, 1915, AT 8 P.M. 1. The Signs and Symptoms of Stuttering. 2. The Physical and Mental Examination of Stutterers. 3. The Thymus as the Seat of Stuttering—Browning. 4. Relation of Stammering to Right and Left-handedness. 5. Medical Aspects of Stuttering from the Teacher's Standpoint. 6. Incongruities in the Freudian Concept of Stuttering. 7. Five-Minute Summary of Spirometer Findings in Stutterers. 8. Further Psychological Steps in the Recovery of the Same Stutterer. 9. Psycho-physiological Analysis of Stuttering. 10. Locating the Speech Center by Hand Motions in Stutterers. First Note.

Physicians and medical students are invited. Kindly drop a postal, if you expect to attend, to 110 Bay State Road, Boston, Mass.

APPOINTMENTS.

UNITED STATES PUBLIC HEALTH SERVICE.—Dr. W. McCoy, recently in charge of the investigations at the leper hospital in Molokai, Hawaii, has been appointed director of the Hygienic Laboratory of the United States Public Health Service to succeed Dr. John F. Anderson, who has resigned.

UNIVERSITY OF CINCINNATI.—Dr. Robert S. Morris has been appointed Frederick Forchheimer professor of medicine.

UNIVERSITY OF CONSTANTINOPLE.—Dr. Boris Zarnik of Würzburg, Germany, has been appointed professor of zoölogy.

UNIVERSITY OF HONG KONG.—Dr. H. G. Earle has been appointed professor of physiology.

UNIVERSITY OF NEVADA.—Dr. Robert H. Mullin, formerly director of laboratories of the Minnesota State Board of Health and assistant professor of pathology and bacteriology at the University of Minnesota, has been appointed to take charge of the hygienic laboratories of the University of Nevada at Reno.

UNIVERSITY OF UTRECHT.—Dr. Hermann Jordan of Tübingen, Germany, has been appointed associate professor of comparative physiology.

RECENT DEATH.

DR. GRACE WOLCOTT, of Boston, died at Heath, Mass., November 9, aged 57 years. She was a councilor of The Massachusetts Medical Society from 1901 to 1913.

The Boston Medical and Surgical Journal

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Address.

WHAT THE GENERAL PRACTITIONER SHOULD KNOW ABOUT INCIPIENT PULMONARY TUBERCULOSIS.*

BY VINCENT Y. BOWDITCH, M.D., BOSTON.

WHEN one recalls the almost endless amount of literature that has been given out on the subject for discussion today, he feels a natural hesitation in adding anything to what has already been said and written upon what would seem to be self-evident, viz.: the importance of early diagnosis in pulmonary tuberculosis.

Notwithstanding the great strides that the anti-tuberculosis work has taken in the past few years, it is still necessary to keep constantly before the public certain important factors that are essential to success in our efforts to control the disease.

That there has been comparatively lately a most gratifying change of attitude among a large number of the medical profession on this point must be evident to all those who have made for years a special study of the disease. The number of physicians who now seek a specialist's advice in obscure cases has greatly increased, but there is still much to be learned among the rank and file of the profession as to what really constitutes an incipient case; and there is even now a lamentable lack of care in paying attention to obscure but definite symptoms, which, if

not promptly noted and measures taken to counteract them, will mean disaster to the patient.

The time has passed when, with symptoms of malaise, loss of flesh, and cough, no matter how slight, whether accompanied or not by feverish symptoms, the patient can be put off lightly with some hasty and often erroneous diagnosis. Too many patients, who, without proper examination, have been told they have a "stomach cough" or a "bronchitis," consult some one else, often the specialist, who finds definite evidence of tubercular disease. With our present knowledge, such superficial decisions are nothing short of culpable, and the harm done to the patient is often incalculable. It is, moreover, still a source of regret and surprise to many a specialist to note the number of patients who come to him with supposedly incipient disease which is really in a well-advanced stage, the extent of which has not been recognized by the attending physician until too late to accomplish anything other than a more or less temporary arrest of the disease, with little hope of permanent recovery.

I should be sorry if, by the foregoing remarks, I seem to disparage the frequently fine and noble work of the large army of general practitioners, especially those in country practice who have not the facilities for work that surround those who live in the city. My respect for the work and opinions of such medical men is of the very highest. All that I say is in criticism only of the methods of some (far too many) who do not pay sufficient attention to symptoms which may be indicative of beginning tuberculosis and therefore are really guilty of neglect of their patients.

* Read at the second annual New England Tuberculosis Conference under the auspices of the National Association for the Study and Prevention of Tuberculosis, at Westfield, Mass., Oct. 23, 1915.

It would, of course, be unjust in the highest degree to expect the general practitioner, no matter how conscientious and skilled in his profession, to be proficient in some of the finer methods of diagnosis which are possible to those who are making special studies of any one disease; and there can certainly be no loss of prestige or dignity to a physician if, in accepting this fact, he therefore calls to his aid expert advice in any doubtful case, and so gives his patient the best chance of regaining his health.

This brings us also to the undoubted fact of the lack of sufficient clinical instruction at present in most, if not all, our medical schools in methods of examination for tubercular disease in its pulmonary form. This is due, not to lack of ability in the teachers themselves, but to lack of time given to the subject and insufficient clinical instruction as to the various degrees or stages of this disease. I think it is not too sweeping an assertion to say that the ordinary medical student upon graduation can perhaps easily recognize a sonorous râle and the difference between absolute flatness in percussion and normal pulmonary resonance, but when launched upon the world, it is the exception when he is able to diagnose an incipient case of tuberculosis with its delicate shades of abnormal symptoms, although doubtless he can, with comparatively slight medical knowledge, usually recognize one that is in the later stages.

The argument that it takes a vast deal of time to become proficient on these points,—more than is possible in the ordinary curriculum of a medical school,—does not do away with the fact that most students are not sufficiently equipped in these matters, and that more can be done and should be done to remedy these deficiencies if we are to make proper progress in our anti-tuberculosis work. I regard it, therefore, as one of the essentials for success in the future that medical schools should be urged to greater activity in this direction.

What, then, constitutes an incipient case of pulmonary tuberculosis? It is not necessary here to launch upon a discussion as to whether or not all cases owe their origin to lesions formed in childhood and which remain dormant. Our chief concern now is to know how to detect at the earliest moment any possibly latent process which is bursting into sudden activity, no matter at what stage of life.

The National Association for the Study and Control of Tuberculosis, in conjunction with the American Sanatorium Association, published a short time ago a series of tables as a guide to classifying the various stages of the disease.* These tables have been prepared by committees of these associations after several years of frequent consultation with each other. I speak from long experience in knowing how difficult it is to get any set of classifications which shall

be satisfactory to everybody. Necessarily all such classifications are more or less arbitrary, and are open to certain objections and limitations, but as a rule these serve as a basis for comparison and answer the purpose fairly well.

What symptoms are important to put physicians on their guard lest disease is beginning? In general, one may say, if a patient presents himself with a history of malaise for a number of weeks, loss of appetite and flesh; and if there has been ever so slight a cough or "clearing of the throat," with or without expectoration; and if upon trial a slight rise of temperature and an accelerated pulse are found; make a thorough examination of the chest at once, or as soon as possible after the visit if unable to give the proper time at first.

If, upon examination of the chest, a difference is found in the percussion note at the apices other than what normally exists consistent with health in a great number of people, viz.: a heightened pitch in the right apex; if there be any special departure from normal in the character of the respiration at either apex or locally elsewhere, combined with the symptoms above mentioned, *watch the patient* and keep him under supervision, with occasional examinations to detect any possible development.

If, moreover, a "click," a wheezing sound, or a râle of any nature, is found in one or the other apex of the lungs, watch carefully; and if the signs persist, you may be moderately certain without further assurance that trouble is brewing. Modern research has taught us that possibly these apical conditions may be consistent with disease other than tuberculosis (grippe, for instance), but in thirty years of practice, I have never failed to heed the excellent advice that was given me over and over again by my best teacher:

"If, with a history of abnormal symptoms lasting for a longer or shorter space of time, upon examination you find anything out of the normal at one or the other apex, watch your patient closely, for the chances are that there is or has been tubercular trouble there."

I am not referring now, of course, to the cases of apical pneumonia not uncommon in children but rare in adult life. There are always exceptions to every rule, but one cannot go very far wrong if, under such conditions as I have mentioned, special measures are taken to increase the patient's powers of resistance to the utmost and to keep him under supervision.

As aids to diagnosis, first, where possible, is the immediate examination of the sputum. *Do not delay.* There is no excuse for delay with our present state and municipal facilities for such examinations. If tubercle bacilli are found, of course we have the surest proof of the presence of tubercular disease, always remembering, however, that repeated negative examinations do not necessarily mean that no tuberculosis is present. In such cases, give the patient the

* Report of the Committee on Clinical Nomenclature. Transactions of the National Association for the Study and Prevention of Tuberculosis. Ninth Annual Meeting, 1913, p. 243.

benefit of the doubt, and do not relax in your observation of him.

As further aids to diagnosis, we have the oft-mentioned and frequently-used tests with tuberculin, either by the von Pirquet (skin) test, the ophthalmic test (now less frequently used), and the subcutaneous test, the most reliable of all. All are to be resorted to, however, only as corroborative of other positive symptoms; no one is to be relied upon solely, the von Pirquet test having proved to be of less value after adolescence than in the earliest years. In the subcutaneous test, the method which we have ordinarily made use of at the Sharon Sanatorium is, after making sure that the patient is free from heightened temperature for several days, to inject two milligrams of Koch's "old tuberculin," the patient being kept in bed and a four-hour chart taken to note any possible rise of temperature accompanied by symptoms of greater or less malaise during the ensuing 48 hours. Should two milligrams bring about no reaction, then five milligrams should be injected with the same procedure, a few days after the first dose; and finally a dose of ten milligrams, should the earlier trials be negative in result. One observer of high repute claims that if the smaller doses fail to give a reaction, it is not necessary to give the largest dose mentioned; but inasmuch as we have the authority of Koch himself, our usual custom seems justifiable, failure to react after the largest dose probably meaning that no tuberculosis is present.

The use of the x-ray has come to the fore in recent years and much is claimed for it as a valuable adjunct in the diagnosis of tuberculosis, whether doubtful or otherwise. By some,—I think I may say, a minority,—it is claimed that early doubtful cases can be more easily demonstrated as positive by the use of the x-ray than by auscultation and percussion. On this point, I must confess to considerable skepticism. One can easily conceive that an expert with the x-ray can see much that is not discerned by a less well-trained eye; but I find it thus far in my experience difficult not to believe that the examiner with a well-trained ear can more easily detect the slight abnormalities of *incipient* pulmonary disease, especially if the lesion be near the surface, than one who depends upon the presence of shadows made by the x-ray for his diagnosis. The comparative excursion of the two portions of the diaphragm as shown by the x-ray and demonstrated first by Dr. F. H. Williams, is a valuable adjunct in determining an abnormal condition of the lung.

In spite of the great advance that has been made in the practical use of the x-ray of late years, I can but feel that we have not yet sufficiently studied the causes of the phenomena shown by this method to warrant our drawing what have seemed to me at times hasty conclusions as to the amount and nature of disease which may be present in the lung. One thing is

absolutely certain in my mind, viz.: that I have very little faith in the findings of any one but those who are experts in this department of science, and I most unhesitatingly condemn the diagnoses of tyros who, upon the insufficient ground of their own supposed findings in the use of the x-ray, give their patients unnecessary alarm and anxiety as to their bodily condition.

In conversation with experts I have been impressed and pleased by the conservatism which they have expressed on these points, for in that very attitude they show their own breadth of mental vision. Many times I have been told by them that, although they have been able to detect certain abnormal shadows over portions of the lung, they are quite unwilling often to make any positive diagnosis of the cause, although admitting the possibility that tubercular processes may be, or have been, present, while diseases of less serious nature, like grippe or bronchitis, may have been the causes of abnormal thickening of the lung tissue.

That future developments may bring us even greater proof of the efficacy of x-ray examinations in suspected lung disease, I am quite ready to believe, and I should regret it if I seem to disparage the work done by specialists in this department. I wish only to utter a word of caution against hasty conclusions made through lack of experience. As an illustration of this, allow me to cite one concrete example which came under my observation a few years ago. A young woman presented herself for examination because of great perturbation of mind from having been told after an x-ray examination of her chest by beginners in that branch of work, that she had "shadows in the upper portions of her lungs," and that she "showed signs of tuberculosis." This diagnosis was based solely on the x-ray examination. She had consulted a physician because of an annoying and persistent pain under the left scapula for a few months. This had been the cause of sleeplessness and much fatigue. She had had no symptom otherwise to make one suspect tuberculosis. She had been in perfect health in previous years; no trace of cough, expectoration, fever, loss of flesh, or other abnormal sign; but her mental condition consequent upon the grave diagnosis given her was distressing. A full examination of the chest by auscultation and percussion failed to reveal the slightest trace of pulmonary disease, and I felt convinced the pain was due to some pressure on an intercostal nerve, due partly to her occupation. I sent her to an orthopedist, who promptly made the same diagnosis, supplied a certain kind of corset, and in two weeks the absolute relief to the patient, both physical and mental, was something never to forget. The pain entirely disappeared and the patient has been perfectly well, and she wrote later of her excellent health and entire freedom from abnormal symptoms. A case of this sort should teach us much as to the unwisdom, to say the least, of hasty diagnoses.

Far more important, to my mind, than the results of tuberculin tests or x-ray examinations, is the patient's history, past and present, which usually throws a vivid light upon the whole question; his general condition, and his appearance, combined with the signs found upon the examination of the chest by auscultation, percussion, palpation, etc. If, added to those data, we have the aids to diagnosis just mentioned, we can with increased confidence advise as to what course should be taken by the patient to regain his health.

As a summary, therefore, of all that has just been said: The vital point in all examinations of patients is that we must not depend upon any one method alone unless the disease is so apparent that a mere tyro could make a diagnosis. That cases often appear which tax the skill and knowledge of the most expert observers, and in which it may at first be impossible for any one to make an absolute diagnosis, would seem to be a self-evident truth.

In thus speaking of the methods which should aid us in making the diagnosis of incipient pulmonary tuberculosis, I have touched only upon those which are most commonly used; and I have purposely refrained in this paper from alluding to some which are mentioned by various authors who lay stress upon certain methods which do not seem thus far to be of sufficient scientific or diagnostic value for ordinary use. They come more into the realm of the specialist, who has the opportunity usually for making more extensive observations than the general practitioner, and are interesting rather than of marked use in making a diagnosis. Among these, perhaps that mentioned by some writers as the "sign of D'Espine" is one of the most familiar, in which a certain bronchial character to the whispered voice in areas between the spine and the scapulae has seemed to indicate the presence of enlarged tubercular bronchial glands in children. It is extremely doubtful, however, I think I may say to most observers, whether this sign is absolutely to be relied upon as a means of definite diagnosis, although some writers believe that it has great value in this special form of disease, while granting that it may be not infrequently due to causes other than tuberculosis.

We have a long and difficult path ahead of us still in our endeavor to bring tuberculosis into the ranks of the diseases that can be kept under control; but with the great advance already made, there is hope ahead of us and no reason for discouragement, even if at times the goal seems far distant. It is only by constant reiteration of what would seem to be often self-evident truths, that we make headway. I trust that in placing before you certain opinions formed by my own experience, I may be adding something, however little, towards the desired result.

Massachusetts Medical Society.

COMBINED MEETING OF THE SECTIONS OF MEDICINE AND SURGERY.

SYMPOSIUM ON EMPYEMA AND PULMONARY ABSCESS.*

JUNE 9, 1915.

- I. The Medical Aspects of Empyema and Pulmonary Abscess. By Frederick T. Lord, M.D., Boston.
- II. The Recognition of Pleural Disorders by X-rays, with Special Reference to Empyema. By Percy Brown, M.D., Boston.
- III. Pneumodynamics of Empyema. By Frederic J. Cotton, M.D., Boston.
- IV. The Treatment of Chronic Empyema. By F. B. Lund, M.D., Boston.
- V. Lung Abscess and Bronchiectasis from a Surgical Point of View; Certain End Results of Acute and Chronic Empyema. By Wyman Whittemore, M.D., Boston.

Discussion.

I.

THE MEDICAL ASPECTS OF EMPYEMA AND PULMONARY ABSCESS.*

BY FREDERICK T. LORD, M.D., BOSTON.

A CONSIDERATION of the medical aspects of empyema and pulmonary abscess has been assigned to me, and in the limited time at my disposal it seems best to speak briefly of empyema and more fully of abscess†. So far as empyema is concerned I shall attempt to consider only certain aspects of the treatment.

EMPYEMA.

Whether the treatment of pleurisy with effusion should be medical or surgical depends for the most part on the character of the fluid, concerning which it is desirable to know the gross appearance, whether clear, cloudy, or opaque, the specific gravity, the amount of albumen contained, the character of the cells obtained after sedimentation, the results of cultural tests for bacteria, and in certain instances the results of animal inoculation. Excluding from discussion other than the inflammatory fluids, an important matter to decide is whether the treatment is to be by thoracentesis or by operation.

It is generally agreed that clear serofibrinous effusions should be evacuated when there are pressure symptoms or when the fluid is of large amount, and that effusion of medium amount should be removed when, after the ineffectual trial of other methods, two or three weeks have elapsed. In such cases thoracentesis is the procedure of choice.

* Presented before The Massachusetts Medical Society, June 9, 1915.

† Empyema and pulmonary abscess have been discussed by me elsewhere as follows: The "Diagnosis and Treatment of Abscess and Gangrene of the Lungs, with Special Reference to Operation," *Internat. Clinics*, Vol. II, 16th S., 1906. "Diseases of the Pleura," *Oster's Med. Med.*, 1907, Vol. III. "Disease of the Bronchi, Lungs and Pleura," Lea and Febiger, Philadelphia, 1915.

The judgment is more difficult in those cases in which there is a turbid effusion or one on the border line between serofibrinous and purulent fluid. It is desirable to know the cause of the turbidity, which may be due to the presence of albumen in fine subdivision, fibrin in the form of floeculi, clot, fat or cellular elements. While the presence of blood or a large amount of pus may be sufficiently obvious on gross inspection, more careful study of the fluid is the part of wisdom if mistakes are to be avoided. The character of the cellular elements and the results of cultures are of most importance in deciding whether thoracentesis alone, or operation, is necessary. With turbid fluids, which contain merely an excess of polymnuclear leucocytes, evacuation by thoracentesis may be sufficient to effect a cure, as in 15 of 27 cases at the Massachusetts General Hospital. In the remaining 12 cases pus was demonstrated at later tapping and thoracotomy was performed. Turbid fluids containing merely an excess of polymnuclear leucocytes secondary to lobar pneumonia or due to the pneumococcus are relatively favorable for thoracentesis. Pneumococci may be demonstrable in stained smears from such material, but may be incapable of cultivation. Even with positive cultures for pneumococci, frank empyema does not necessarily follow, and thoracentesis alone may be tried. With turbid fluids containing abundant necrotic leucocytes and positive cultures for pneumococci, operation is usually necessary. Streptococcal infections rapidly tend to become purulent and generally demand operation. In the decision between thoracentesis alone and open incision, such other factors as the degree of sepsis, the amount of fluid and the rapidity of reaccumulation must also be considered.

With frankly purulent effusions, on the other hand, except as noted below, an immediate and free drainage of the pleural cavity is essential for prompt and permanent cure.

It is important to remember that an open incision is not the procedure of choice in all empyemata. In those cases in which the pus is sterile on cultivation or contains tubercle bacilli alone it is best to evacuate the fluid by thoracentesis. Open incision is likely to be followed by a persistent sinus. Tuberculous empyema complicated by infection with pyogenic cocci is usually best treated by open incision, when the effusion occurs early in the course of pulmonary tuberculosis, but in the advanced stages of the disease a radical operation can hardly be considered, and repeated puncture may be tried.

In the presence of large collections of pus in the pleural cavity in patients who are gravely ill, evacuation by thoracentesis may well be undertaken as a preliminary to operation or as a life-saving measure. In such patients the sudden change in the mechanical conditions after open incision is often followed by a rapidly fatal termination.

PULMONARY ABSCESS.

In considering this subject I shall not attempt to distinguish between abscess and gangrene, and propose to discuss the two processes together. Grouping together the cases I have collected from the records of the Massachusetts General Hospital and those seen in consultation, there are in all 185 cases.

Certain features in the etiology are worthy of note. In 85 cases the cause is not wholly clear, but from their insidious onset or occurrence following an acute infection of the upper parts of the respiratory tract an origin from bronchopneumonia may be suspected. Abscess is not an infrequent finding at autopsy in cases of broncho-pneumonia. Of 85 cases of bronchopneumonia coming to autopsy at the Massachusetts General Hospital abscesses were found either macro- or microscopically in 16, a proportion sufficiently high to suggest that, had these patients survived, the losses of pulmonary substance would probably have proceeded to full recovery in many instances.

The next most important cause is lobar pneumonia, which is represented by 30 cases. In lobar-as in broncho-pneumonia, the development of abscess is an infrequent clinical finding, but more common at autopsy. Thus of 51 cases of lobar pneumonia coming to autopsy abscesses were found either macro- or microscopically in 14, suggesting that the clinical infrequency of abscess in lobar pneumonia is more apparent than real, and that certain cases of pneumonia are complicated by small losses of pulmonary substance which proceed to full recovery.

Another important cause, represented by 25 cases, is the aspiration of infected material into the deeper parts of the respiratory tract. In this group are included such abscesses as arise after etherization for operation upon parts of the body remote from the respiratory tract (10 cases), the extraction of teeth (5 cases), the removal of tonsils (2 cases), and adenoids (1 case), the inhalation of foreign bodies (4 cases), and submersion (3 cases). The unfortunate occurrence of pulmonary abscess in this group is not always avoidable, but its incidence will diminish with greater caution in selecting the time for operation under ether, and the postponement when possible of operative interference, until the respiratory tract is clear of infection, greater care in the prevention of inhalation of blood or other material during operations about the mouth and the naso-pharynx and the early removal, with the aid of bronchoscopy, of inhaled foreign bodies.

Regarding the pathology of abscess, there are certain aspects of the process with a bearing on surgical intervention and consequently a special interest on this occasion. Pulmonary destructive lesions are more often multiple than single. They are usually situated toward the periphery of the lung near the pleura and not deep within

the substance of the lung. This prevailing subpleural site is worthy of the attention of the surgeon, who would do well carefully to explore the more superficial parts of his field of operation in difficult cases before proceeding to deepen his incision. All destructive pulmonary lesions are complicated after a time by the development of indurative pneumonia, which is more dense and more extensive the longer the disease has lasted. Induration of the tissue about the abscess diminishes the likelihood of successful operative interference. The pleural layers overlying the destructive pulmonary process are adherent or separated by purulent fluids in about one-half the cases. It must be appreciated that time is an important element in modifying the pathology of abscess, and that the longer the process has lasted the more likely are the lesions to be multiple and surrounded by indurated tissue.

The clinical manifestations are, in general, those of sepsis, with fever, elevated pulse, sweats, chills and leucocytosis, and with special reference to the lung, cough and the expectoration of purulent and oftentimes foul material. If the case is seen at a time when the abscess has not yet ruptured,—an uncommon occurrence,—there may be the clinical features of sepsis with trivial local symptoms. Sputum is usually present from the beginning and expectorated in smaller or larger amounts at frequent intervals, less commonly in large amounts at infrequent intervals. Hemoptysis is a feature in a small proportion of the cases.

The pulmonary signs are very varied. There may be only the persistence of râles at one place in the lung or typical signs of consolidation, i.e., dullness, bronchial breathing, increase of voice, whisper and tactile fremitus. The signs of cavity,—tympany on percussion, amphoric breathing, metallic râles, etc.—are demonstrable only in a small proportion of the cases, and their absence should not be regarded as evidence against the presence of pulmonary abscess.

There are three indications which I have come to regard as a most important triad of signs. The sign which is common to the largest number of cases is dullness on percussion, which may or may not be accompanied by other physical findings. It may be very marked or elicited only by careful comparison of the percussion note on the two sides of the chest. The second indication is the evidence of a circumscribed increase of density of the lung on x-ray examination, and this is almost indispensable when surgery is under consideration, since it is of material assistance in the exact localization of the process and the exclusion of numerous small multiple foci which might make operation inadvisable. The third important factor in deciding upon the presence of a destructive lesion is the demonstration of elastic tissue with an alveolar arrangement in the expectoration. If elastic tissue cannot be found there is the possibility of mistaking the disintegration of pus in a dilated

bronchus for a pulmonary abscess. It is highly desirable in making the diagnosis of abscess to have these three signs positive, but it is by no means necessary that they should all be present, and of the three I have failed most often to demonstrate elastic tissue.

It is of paramount importance before making the diagnosis of a non-tuberculous destructive process thoroughly to exclude tuberculosis, and the sputum should be carefully and repeatedly sought for tubercle bacilli. It is manifestly easier to exclude tuberculosis in these lesions than in cases suspected of incipient tuberculosis, because a pulmonary process which has progressed to the stage of tissue destruction without showing tubercle bacilli in the sputum is not likely to be tuberculous. The presence of elastic tissue and the absence of tubercle bacilli in the same specimens is a double assurance against the tuberculous nature of the destructive process.

One caution I should like to emphasize in attempting to make the diagnosis of these destructive pulmonary lesions, and that is in regard to the use of exploratory puncture. Exploratory puncture is frequently performed in such cases, but it would be better if it were never done. There are dangers which the records of any large hospital will probably show, and certain of our records do show in the performance of this apparently simple operation. The pathology of abscess or gangrene is such that blood vessels lining the wall or traversing the lumen of the cavity may be unsupported by any tissue, and their injury may be followed by severe and even fatal hemorrhage. A second feature in connection with the more chronic cases is the displacement of the diaphragm upward in consequence of the loss of pulmonary substance and the contraction of connective tissue. In some cases the upper level of the diaphragm is elevated far beyond its normal position into the thoracic space, and its perforation by an infected instrument may lead to fatal peritonitis. This last danger is not confined to chronic abscess or gangrene, but is common to all chronic inflammatory lesions in which replacement of normal structures by connective tissue takes place. It is a matter which should be constantly in mind, not only in connection with chronic pneumonitis, but also with chronic empyema, and in any such condition when thoracentesis is under consideration it is desirable that the exact position of the diaphragm be determined by x-ray examination before an exploratory puncture is made.

In regard to the prognosis of pulmonary abscess and gangrene, the mortality of gangrene may be estimated at about 80% in unoperated cases. The mortality of abscess is probably a little lower than that of gangrene. In 31 of the more recent cases of unoperated abscess in my series the condition at and after discharge from observation has been determined and 22 died, a mortality of 70%. It should be said concerning the outlook without operation in the remaining 20 to 30% that while in many instances there is

relief of the more urgent symptoms, yet there is only uncommonly a complete recovery from the suppurative process. The patient is likely to be continually harassed by the expectoration of purulent material and constantly liable to recurrent attacks of broncho-pneumonia and gradual extension of the pulmonary infection. Complete recovery from these destructive pulmonary lesions without operation occasionally occurs, however, and I have had the good fortune to see this take place in three private and two hospital cases. In all five of the cases there were symptoms of sepsis and cough with abundant foul sputum. The onset was insidious in three, in one the pulmonary symptoms followed the extraction of teeth under ether and in the last case an infected embolus from the hand was the probable cause. The duration may be estimated to have been from about two to ten months. Dullness on percussion, with or without other signs, over a circumscribed area was present in four, while physical examination was negative in one case. X-ray examination was not made in one, but was positive in the remaining four cases, two of which showed suggestive evidence of a pulmonary cavity. Elastic tissue was not demonstrable in one, but was found in the sputum of three cases, and in the remaining case a lung shred was discovered. In three of the five cases I was able to obtain an examination by means of the x-ray after the process had fully subsided, and in none of these could x-ray evidence of any residual disturbance in the lung be demonstrated. In all cases the recovery was complete and the patients are still without cough or expectoration.

One of these recovered cases deserves mention in somewhat greater detail. It was the case of a man of 41 who came to me Dec. 4, 1914, with the history of cough and purulent expectoration for the preceding seven years. He gave the history of having had foul expectoration only since October 15, and this feature of the story is worthy of note and is a matter it is well to have constantly in mind in taking the history in such cases. While the patient may have had a long continued pulmonary infection, it may be possible to elicit from his story an indication of a more recent origin of a complicating destructive process, thus putting a more favorable aspect on an otherwise serious situation. This patient expectorated about a glass full of very foul sputum in twenty-four hours, and during paroxysms of cough his breath was very offensive. There was dullness in the right mid-back, positive x-ray with evidence of a cavity partly filled with fluid which changed its level on changing the position of the patient, and in the sputum no elastic tissue but a lung shred. He had fever and leucocytosis and was constantly losing weight. In view of the progress of the disturbance I suggested, and even rather urged, operative interference. He took the matter under consideration and did not at once accept my advice. He soon began to improve, and in about

two months from the onset was completely well and without cough or expectoration, a surprising result, especially in view of the pulmonary symptoms preceding the more recent origin of the abscess. X-ray examination by Dr. W. J. Dodd, on March 11, 1915, three and one-half months after the first observation, showed no evidence of the previous trouble.

Such an experience as this is, of course, exceptional, but the chances of spontaneous resolution of pulmonary abscess, slight though they be, must be taken into consideration, and make it desirable, if possible, to keep these cases under observation for a time to determine the tendency of the process for better or worse. It may in general be said that to a limited degree the cause has a bearing on the outlook, lobar pneumonia or trauma being relatively favorable, the inhalation of foreign bodies or the lodgment of infected emboli in the lung being less hopeful for recovery.

Regarding treatment, it is important to remember that while surgery offers the greatest hope it is not to be applied indiscriminately to every case and that other and simpler measures may be expected to be of distinct advantage. All patients with symptoms of sepsis should, of course, be abed. An abundance of nourishing food and fresh air are of importance. The toxemia and general sense of ill-being may be lessened by cautioning the patient not to swallow his sputum. The effect of posture should invariably be given a thorough trial. Evacuation may be favored if the patient lowers his head over the edge of the bed during a paroxysm of cough. At stated intervals and for a certain period the patient should lie with the affected side uppermost with the purpose of draining the pus into the trachea. Elevation of the foot of the bed for a time night and morning, the patient meanwhile lying at full length on the back or abdomen and without a pillow, should be tried.

In deciding between expectant treatment and surgery, the clinical aspect is of prime importance. The general appearance of the patient and the degree of sepsis, measured by the temperature curve, the pulse rate, sweats, chills, and the white count, are valuable guides. A daily record of the cough and the amount of expectoration are important for the estimation of progress. Persistent septic features, with an increasing amount of sputum and abundant elastic tissue or lung shreds indicate an advancing lesion. The chances of surgical relief diminish with the lapse of time. Of 31 operated cases, in 19 with a previous duration of nine months or under, 5 died and 1 was not relieved, the result thus being unsuccessful in about one-third of the cases; while of the remaining cases, 7 were relieved and 6 cured, a favorable outcome in about two-thirds of the cases. Of 12 cases with a previous duration of nine months to two years, 5 died and 2 were not relieved, the attempt at relief thus failing in about three-fifths (58%).

of the cases, while the remaining 5 cases obtained notable relief, but as yet no permanent cure. A more extensive lesion, multiplicity of foci and the presence of dense induration about the affected regions probably account for the less favorable result in the more chronic cases.

The indications for or against operation are difficult to formulate and each case must be decided on its merits, but as a general rule it may be stated concerning the acute cases that in the presence of a small process, without marked symptoms of sepsis, with purulent and not foul expectoration and without a large amount of elastic tissue or lung shreds, an expectant policy may be followed. If, after observation for three to four weeks, recovery or marked improvement does not occur, operation should be considered. Operation is indicated, on the other hand, with an extensive process, marked sepsis, putrid sputum, and abundant elastic tissue or lung shreds. The exigencies of the individual case determine the propriety of operative interference in cases which have lasted for months or years. The condition may be intolerable to the patient or so menacing to life as to justify surgical intervention, even though little more than partial relief may be expected. Circumscribed, inextensive and single lesions offer a greater hope of success.

The advantage of surgery over the expectant treatment of abscess or gangrene cannot be estimated alone by the mortality returns, which though sufficient to prove that surgery is the more effective, do not tell the whole story. The observation of cases before and after operation, even when the outcome is unfavorable, often times indicates that the operative procedure was justified, as indicated by diminution in the degree of sepsis and the amount of foul sputum, and if performed earlier or under more favorable local conditions might well have been successful in affecting a cure.

II.

THE RECOGNITION OF PLEURAL DISORDERS BY X-RAYS, WITH SPECIAL REFERENCE TO ENZYEMA.*

BY PERCY BROWN, M.D., BOSTON.

IT occurs to the writer that, perhaps, the chief value of any contribution to a symposium lies in its brevity. Circumstances make it possible for him to attempt to demonstrate his assertion, for it so happens that, concerning the matter of pyogenic infections of the pleurae, to which he purposes to confine himself, the diagnostic help afforded by x-rays plays a part secondary to the usual forms of clinical investigation. Only occasionally is the condition difficult of clinical diagnosis, and its chronic existence may be often

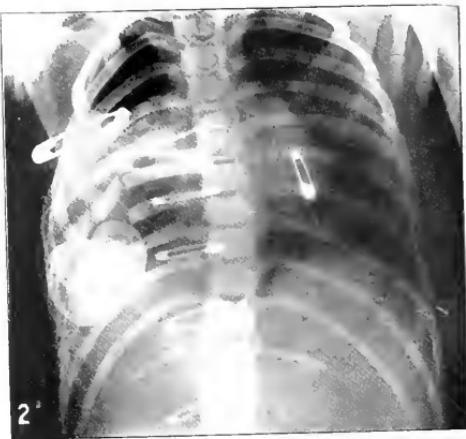
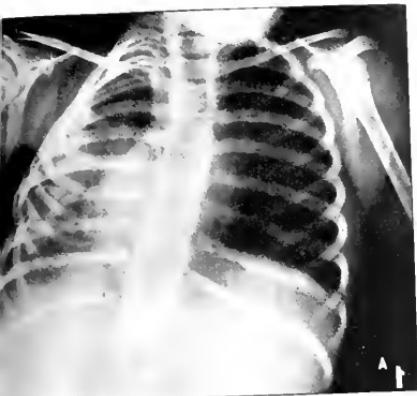
inferred from mere inspection, amplified by the art of deduction. On the other hand, x-rays used as a means of recording the extent of the process, the neighborhood disorders which it engenders and the progressive effect of appropriate treatment, offer a field of which the fertility is not always taken advantage of.

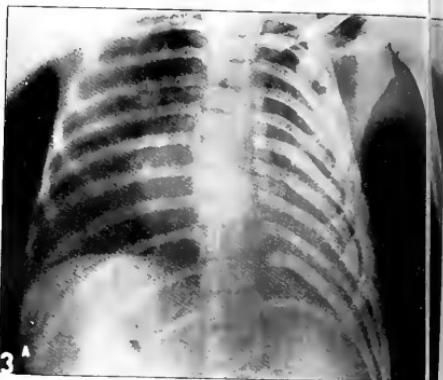
There are surely reasons for this, and some of them, possibly, merit a moment's discussion. The chief of them all, it seems, is the difficulty of bringing the patient and a proper source of x-rays into immediate correlation, except in favorable instances where the patient may be in a hospital. This applies less to the acute, dry or plastic pleuritis, since it is hard to see where roentgenological examination here can add to the information to be obtained by auscultation and percussion. In acute cases, however, it will be found, as shown by experience, that the time spent with the fluoroscopic screen is not wholly wasted. The effusive stage which, as it increases the amount of its inflammatory product, bringing with it the respiratory distress and increasing subjective weakness, seems to widen the chasm of difficulties attendant upon the ambulation of the patient. The precursors of purulent pleurisy, such as a pneumonia or a focus of profound sepsis, may, likewise, have reduced the patient to a condition which contraindicates strongly any gross disturbance of him, such as removal from the sick room or ward.

It is a happy fact that, in the acute or subacute pleural disorders, the employment of fluoroscopy, or visual examination with the screen, far exceeds in value the production of graphic records upon plates or films—so-called radiography. If x-rays are to be used at all in the dynamic stages (and, be it said, they can in such cases be used only in a way accessory to the incontrovertible methods of physical examination we all know), it is largely the limitations to normal respiratory function we wish to observe. Even if effusion has appeared and is beginning to occupy the domain of the retreating friction-rub, we can largely deduce its composition by observing its readiness to comply with hydrostatic laws. These observations are to be made by fluoroscopy alone.

Since, therefore, fluoroscopy is to be desired at times in non-ambulatory cases, while radiography as often goes a-begging, one must surmount the difficulty of producing a transportable fluoroscopic apparatus. As a matter of fact such a task is relatively easy—much more so than transportable radiography is. In the acute cases, as has been said, the phenomena of physiologic motion, or of pathologic departure from it, are primarily to be observed. In instances where the by-products of inflammation are accumulated, but where the case is as yet to be maintained in comparative quietude, the effect of posture upon the level of the effusion may be noted roentgenographically, and co-operation, at least, afforded to the hand guiding the aspirating

* Presented before The Massachusetts Medical Society, June 9, 1915.





needle. Here also the roentgenologist may even venture to afford material help to auscultation and percussion, with due respect, especially if pyogenesis has set in and the effusion becomes sacculated or interlobar.

Besides, fluoroscopy, in the cases of those who are acutely sick, disturbs the patient no more than a thorough investigation by auscultation and percussion often may. The extreme necessities of the present war have become mothers to inspirations of invention resulting in marvels of mechanical convenience by which x-rays may be used in the field and at the bedside, and a thoroughly transportable fluoroscopic apparatus for use in more peaceful surroundings is soon to be, it gives one pleasure to say, an accomplished fact.

Roentgenography comes into its own, so to speak, when the subacute or chronic cases are to be considered, or when the variant dispositions of effusion are to be observed. The chronic adhesional pleuritides, which may include the empyemata, may be classed in this gamut. To the writer's mind the deformities of the pleura are to be considered of equal importance to those of the upper respiratory passages, to those of the digestive apparatus, and to those of the articular structures. The respiratory ravages produced by the empyemata of childhood may complicate, in a way purely mechanical, the future existence of the individual. The parietal contractures and the malposition of the ribs make a determination of the amount of usable lung a matter of great difficulty by auscultation and percussion, even to the most sensitive ears. The proportion of serviceable vesicular tissue beneath non-expanding chest walls is by no means difficult to determine by x-rays, nor are the limitations of such tissue in inspiration and expiration. The same handicaps are thrown in the path of auscultation and percussion when it becomes necessary to determine the displacement of neighborhood viscera within a deformed chest or beneath organized exudate. This applies especially to the heart. By x-rays, rarely is the cardiac shadow lost behind that of an effusion, while it will be visible through the most dense exudative organization.

To him who may be more interested in therapeutics and its results, much information is afforded by x-rays with respect to the phenomena of resolution, absorption, expansion, and the general or partial resumption of normal state or function. Especially gratifying to see are the evidences of the mastery of Nature over the apparently crippling consequences of a purulent pleuritis.

In order that such may be seen by this company and that it may be spared a humdrum demonstration of pleural effusions of all sorts and types, familiar to every eye and ear, it is the writer's purpose to present to you the end-results as demonstrated by x-rays in three cases which differ somewhat in etiology and in nature.

The first is that of B. A., a child between four and five years old, who first came under observation during the middle of last December. She presents no history of the exanthemata or of other infectious process. She does, however, give a history of persistent nasal catarrh and a multiplicity of head colds. On physical examination, her tonsils are slightly enlarged, but seem not to be the hosts of acute infection. She has a few small cervical glands. Her lungs present a slight dulness in the left back from the mid-scapular line to the base; in the axillary line from the fourth rib to the base. Over a small area as large as a silver dollar, breath sounds are diminished and expiration is slightly prolonged and high pitched. No rales are heard and no dullness is perceived. The sign of D'Espine is not present. A provisional diagnosis is made of lobar pneumonia. A few days later the dulness extends over the entire left lung and dullness to flatness from the mid-scapula to the base. Bronchial breathing appears about the base. On the twenty-sixth day of the month, the lower left chest is flat. The respiratory murmur is lost — the bronchial breathing is distant. The heart is percussed as four centimeters to the right. The diagnosis is pleuritis with effusion. On the same day the patient is aspirated and one ounce of pus obtained. The child is then referred to surgical care. The following day the rib is resected by the classic operation. A large quantity of yellow pus with cheesy flakes is obtained. In this specimen there is reported the existence of the pneumococcus. Drainage is instituted. Two months later the subsequent history describes a period of somewhat sluggish drainage and a subsequent operation for producing it more freely. The second record shown you is that of this child six months later, after complete closure of the wound and after a course of therapy directed toward exercising the lung by means of Wolff bottles, horns and the like. The change, you see, is marked and distinctly for the better, but presents otherwise no especial interest. In short, the case is one which is typical as showing the value of subsequent examinations and ultimate permanent records. Such comparative records, at once all-embracing and graphic, can be obtained only by roentgenography.

The second case is that of F. T., a girl of eight, first seen in September of last year. She gives a history of previous empyema which has been draining for a long time and, of late, she complains of more cough and of cold sweats. She presents a considerable degree of thick, yellow expectoration. On examination, her tonsils are slightly enlarged and her lungs present a diminished expansion, with especial reference to the entire right base. A gross degree of flatness obtains over the area of the drainage tube. Vocal fremitus is absent as well as breath sounds. The operation, naturally, consisted of a reestablishment of drainage. A month later the operation of decortication was done and the visceral pleura was found to be holding the lung tightly back. This was incised and freed. The etiological factor was found to be the *staphylococcus albus*. The length of duration in this case has, apparently, produced much thoracic deformity which, by x-rays, is more apparent anteriorly than behind. The first record shows the causation of the dulness to flatness about the original drainage tube. The case has recently been seen by the writer with reference to the end-result. As one may easily see in the next record, nature has

made the best of a hard task. Especially posteriorly is the degree of resolution and repair most apparent.

The third case is that of W. J., age six and one-half years, who was seen in November presenting the following history: a pneumonia was sustained at the age of four, followed by empyema. Three months later a rib resection was done. Five months later, a second operation. Even after the second operation an undiminished discharge persisted. General health became poor and appetite meagre and the bodily weight diminished. At the time of hospital entrance vocal fremitus is absent over the lower two-thirds of the left side; flatness on percussion. Voice and breath sounds are absent. The right lung gives good resonance. The finger tips show most beautifully the chronic osteoarthropathies of pulmonary origin. The operation consisted in a new resection. The old sinus was made free. A few days later the boy is observed not to be doing well. The discharge is small. The left upper lobe presents bronchial breathing and dullness on percussion. Three days later the crisis of an apparent secondary pneumonia occurred and the sinus discharge markedly improved in amount. The next month the boy continued slowly to get better. The amount of discharge is diminishing slowly. Blowing exercises have been instituted.

This boy was handicapped not only by low physical resistance, but by the onset of a secondary pneumonia, yet the degree of expansion which has taken place in his case is remarkable, especially when comparison is made between the records now to be shown. The first record was obtained in November of 1914 and the last but a few days ago.

Thus it will be seen that the function of x-rays by no means ceases when the initial diagnosis is made or when secondary diagnoses are made. They are most properly an agent by which may be observed and recorded the degree of handicap with which the patient has forthwith to contend. As such, their function is far more important than as a desirable but unnecessary and secondary adjunct to a diagnostic procedure as old as the day of Laennec.

To him who prizes the graphic evidence of pathologic processes, as well as to him who cherishes the gratifying evidence of his own good work, a dependable record by x-rays is not only a thing of beauty, but becomes a joy forever.

III.

PNEUMODYNAMICS OF EMPYEMA.*

BY FREDERIC J. COTTON, M.D., BOSTON.

THERE is a whole physiological literature centering around the essentially simple condition of a rigid thoracic cage, varying in content with a moving diaphragm, containing an elastic, collapsible body—the lung—held from collapse, primarily, by the air-tight empty pleural cavity.

* Presented before The Massachusetts Medical Society, June 9, 1915.

Surgically, the points of interest are less in number, though even the surgical literature is rather vast. What we wish to know for practical surgery may be summed up as follows:

1. What happens in pleural effusion?
2. What happens in pyopneumothorax, simple or valvular?
3. What happens if we tap one or the other?
4. What happens if we open the chest?
 - (a) With a small opening.
 - (b) Wide open.
 - (c) Right and left.
5. What factors govern the varying collapse of lung?
6. The clinical features of lung collapse.
7. The effect of intratracheal insufflation.
8. The effect of the now nearly obsolete positive and negative pressure chambers that have cost so much work and thought.
9. The question of drainage.
10. Re-expansion of compressed lung.
 - (a) Immediate, as in empyema operations.
 - (b) Later, by valves or siphon or suction.
 - (c) Expansion by cough, Wolff bottles, etc.
11. Physics of chronic empyema.
12. Physics of Schede or Oestlander operations.
13. Physics of decortication.
14. Physics of heavy negative pressure with or without decortication.

In the normal chest there is rhythmic, alternating, increase and decrease of cubic contents, as diaphragm and chest muscles act. If air goes in and out freely, neither positive nor negative pressure reach any high grade; with closed glottis, the pressure variation is far greater, of course.

In the pleural cavity tension varies from about 4.5 mm. Hg. to 7.5 mm. (Heynsius); according to Aaron (who did his experiments on man) this pressure varies from 3.02 mm. at the end of expiration, to 4.64 mm. at the end of inspiration; this under quiet conditions. Forced respiration is said to give readings as low as 30 mm. Hg.

Not less than five factors come into play in determining the intra-pleural pressure: the positive pressure of expiration; the negative pressure of inspiration; the elasticity of the lung (a factor in negative pressure, as far as it goes, measured to about 3 to 7 mm. of mercury); lymphatic absorption, that clears the cavity of fluid, but is actually a result of the pressure factors rather than an active agent in determining pressure, so far as we know; and last, but by no means unimportant, the "surface tension" of the great pleural surfaces, tending to preserve their contact.

A mere leak in the parietal pleura does not produce collapse. We are told that this depends on the size of the parietal leak; that such a leak may not exceed in cross section the size of the lateral primary bronchus, without lung collapse. This may be so in times of quiet respiration, but all of us have seen, at operation, holes far larger than any bronchus, filled with lung tissue, sug-

gesting the beginning of that "hernia of the lung," which I know only from the older literature. This is not a question of surface-tension alone, of course. The useful fact to know is that surface tension alone tends to prevent lung-collapse, if the pleura is *slightly* torn. Given a larger wound, the lung tends to retract sharply, unless held by adhesions.

It does not collapse entirely in human cases, as it does in some animals, simply because the human thorax is very broad and shallow, with a short and strong mediastinum between the halves; a very different condition from the *long, lax* curtain in the deep narrow chest of most lower orders.

In man, one side of the chest may be full of fluid or of air, with very little effect on the other side. The heart goes over a bit, but the cavity remains, with relatively rigid walls. Inspiration sucks in air, but more than this, expiration pushes air, not only into the trachea, but into the other bronchus as well, and if the glottis closes during expiration, two or three times, as with a cough, the other lung fills full!

Commonly with the deep, irregular coughing respiration that these cases show under light anesthesia, the air forced from one lung to the other, under quick expiration, with partial glottis-closure, suffices to fill a collapsed lung *entirely*; sometimes to keep it filled—once a dressing is on—for an indefinite time.

Now to go back to our questions.

What happens in case of pleural effusion? Fluid collects and until a considerable mass collects, the tension question is practically unaffected; the lung on this side grows less in volume, largely through collapse of the lower lobe. Lung elasticity and consequent retraction keep the tension balance nearly even. The upper level of the fluid (as Garland of Boston showed in the first paper I know of on Pneumodynamics) is not a level, but a curved line. The x-ray shows a similar irregularity in the upper level; there is, in fact, as the x-ray shows, *not a definite level at all*, but a gradual diminution in wedge-shaped cross section, between lung and chest wall, with a sort of flat "S" shaped profile. As the fluid, serous or purulent, increases in amount, the diaphragm sinks under the weight, and presently the intrathoracic pressure on this side becomes continuously positive. Heart and other mediastinal structures are pushed over well beyond the mid-line. This is the stage of dyspnea and eventually of cyanosis. One lung is enough to breathe with, if the patient is quiet, but this one lung must be undisturbed, and one lung under pressure is not enough for comfortable function.

In "pneumo," which is always "pyo" pneumothorax, the fluid weight is less; the diaphragm is less pushed down; cross pressure on the other side is less, as a rule. Physical examination reveals the condition pretty clearly,—a horizontal level between denser fluid below and air-filled pleural cavity.

X-rays show fluid below with air above, but in this case the line is not Garland's line, but a *level* between water and air,—*horizontal*, varying, of course, with the posture of the patient.

In all cases of pyo-pneumothorax, the pressure must, I think, be positive, but this pressure is ordinarily slight. Given a wide-open pneumothorax opening into the lung, the pressure must be zero, but this is not the condition that occurs in fact. The opening is commonly small (at least at first), and air is pumped into the pleura more easily than it gets out.

In one case of my own, a policeman, shot full of birdshot by a "yegg," and in *extremis* from pneumo-hemo-thorax, with obvious pressure, a simple tapping of the over-filled pleura brought his heart back to mid-line, saved the situation, and (as the valve action had ceased) led to his prompt recovery.

In another case I saw with Dr. Bapst Blake, a free opening of the chest saved, at least for a time, a tuberculous patient, in whom a valve-like lung perforation had led to a distention, constantly increasing, that threatened life.

What happens if we tap a chest?

Years ago I punctured a chest full of fluid with the knife point, intending to go ahead in the usual way. Before more than 1 to 2 c.c. of fluid had escaped, respiration stopped, and despite all restorative measures, was not re-established in this case. It was a case of extreme positive pressure with cyanosis from total empyema; a rather desperate case from the start.

What happens in such cases of vasomotor death, no one knows, of course, but I suspect there is a factor of safety in securing the relief of *extreme positive pressure* with a needle, *without anesthesia*. The ease noted was lightly anesthetized, and even light anesthesia disturbs reflexes.

More cases have died from simple tapping than have gone under from operation on the spot, apparently, yet I think it is safer to lessen pressure with the needle one day, and then excise 24 hours later, after tension conditions have become nearly equalized. In ticklish cases, I have often done this; with careful removal of fluid by aspiration, the patient may be brought to the operating room in much better shape. There is, of course, no considerable toxic absorption in the interval after the tension is reduced.

What happens when the chest is opened?

In the normal chest there is some sucking-in of air, but not much, if the hole is small. If much fluid is present, a jet of fluid is promptly thrown several feet with the first expiration. As a rule, the pleural reflex excites a cough and expulsion of fluid is violent for some time. Theoretically, if the parietal hole is large, there should presently be a collapse of lung again. In fact, there is nearly always sharp re-expansion and the collapse does not occur till hours later. If the wound is well dressed, it often does not occur at all. Real collapse must occur if double

empyema is operated on, both sides at once; hence the practice of opening one side and only tapping the other. With efficient valve or suction dressings, the simultaneous operation, or at least opening one side after opening and dressing the other, should be quite safe.

What are the factors governing collapse of lung?

So far as empyema cases go, there are: previous collapse and compression, long continued, then unimpeded access of air from without, on the one side, and respiration with partial glottis closure on the other, supplemented by intentional or accidental valve action at the wound.

What are the symptoms of lung collapse?

In empyema there are none. Rarely does the lung collapse at any time, more than it has been collapsed by the effusion. Such vaso-motor troubles as arise are due to tension changes and to the reflexes of pleural irritation, not traceable to lung collapse.

As to intratracheal insufflation. Theoretically desirable, it has in fact, no place in empyema cases. The deep anesthesia necessary, in order to intube the trachea is too deep for safety in these cases. Moreover, the operation for empyema—rib resection and all—should be over in less time than it takes to anesthetize and to insert the tube for insufflation.

Positive pressure apparatus has no place here. I should hesitate to increase intrathoracic pressure in most cases; the heart load is heavy enough as it is! Neither positive intrathoracic nor negative external pressure are in the least called for, at the time of opening.

Next comes the question of drainage. Most important of all (next to making a hole) is the cleaning out of the cavity, and here is where many operations fail. In certain cases of streptococcus type, the fluid is thin and a small hole is enough. As a rule, however, we are dealing with the pneumoecœus and with the massive fibrin layers that characterize this infection. If not removed, these masses inevitably clog any drainage, as they gradually disintegrate after about the third day. It is the presence of this fibrin that makes the mere insertion of a tube ineffective. Every empyema that will stand three minutes of operation, under light anesthesia, should have a resection of three-fourths to one and one-half inches of rib and an opening into the pleura big enough to admit a finger to sweep about and loosen the adherent fibrin masses. These may be fished out, or the patient may be so turned that the hole is at the lowest point. He will then cough out his own fibrin, and we can put the tube into a cleared cavity.

The old scheme of washing out the cavity is alluring, but not to be allowed at operation or later. I have myself seen two cases of dangerous collapse from irrigation, and there are recorded so many cases of such collapse, fatal in so many instances, that there can be no argument about the matter. What happens pathologically is not quite clear; it is, clinically considered, a vaso-

motor affair, and the fatal cases die a "brain-death," long supposed to be embolism. Autopsies have never shown embolism, up to the time I looked the matter up. Let us call it the vaso-motor effect of a pleural reflex. At all events, it is too dangerous to trifile with; we may not irrigate!

As to the exact point for drainage, it does not seem to matter much. The Children's Hospital series I looked up long ago seems to prove double drainage of no sort of value. Whether we drain at the eighth rib or the eleventh is not important. We should drain behind, and the scapula is too low for drainage above the eighth. Very low drainage is interfered with by the ascent of the diaphragm during healing. Mechanically it doesn't seem to matter! Drainage depends on pressures, not primarily on gravity, and an opening at the level of the 8th, 9th or 10th ribs behind fulfills all requirements. I usually reset the 9th just below the tip of the scapula.

As to the tube, the spool tubes (Fowler's tubes) are neatest, but usually do not fit. Two tubes clog as easily as one. My own choice is a tube not less than one-third, or more than three-fourths of an inch, inside bore, fenestrated, reaching well into the cavity, not too long (2 to 5 inches, according to sizes of patients, and held by a safety pin outside the chest.

As to the dressing, it all comes down to a word: *drainage is best accomplished by whatever best promotes expansion*. We have here no ordinary cavity drainage: pus does not drive out, but is, or should be, *pushed out* by the re-expanding lung!

The question of most importance then is that of re-expansion. And the question of re-expansion is the question of negative pressure. I believe absolutely that *most empyemas get well by accident*; get well because a sloppy, pus-soaked gauze dressing is a very fair valve.

For thirty years past, this problem has been rediscovered and all the means we have today have been reinvented, periodically. I did it all in 1900-1901, and was much shocked to find that Perthes and Revilliod had done it years before. It has all been done since, also.

There are many ways of getting negative pressure in the pleural cavity. The simplest is the wet dressing valve. A little better is the late A. T. Cabot's valve, dating back to the '80's, which was a flap of rubber tissue or gutta percha over the tube, held close by a "doughnut" dressing outside. Mechanically better is the siphon scheme, developed especially by Perthes, in which a trocar carrying a tube inside it is thrust in and the trocar withdrawn, leaving the tube *in situ*, forming a permanent drainage with siphon suction. Except that it does not solve the fibrin question, this would be ideal; in fact it is practically worthless.

The formal valve dressings we shall return to presently. For the moment let us take up the more exact negative pressure apparatus.

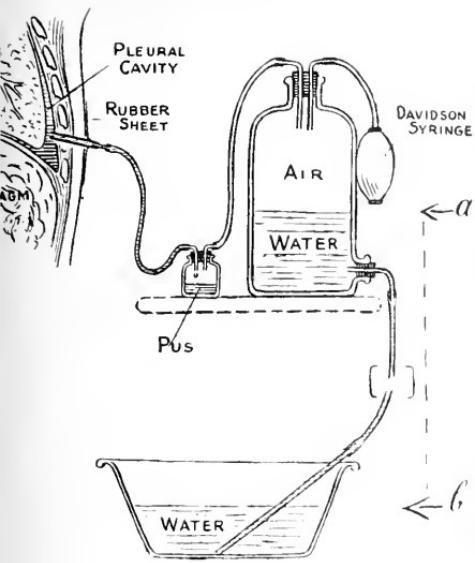


FIG. 1.—Suction Apparatus.
The difference between the levels *a* and *b* should not be over 20 inches. At about 30 inches, hemorrhage begins.

In 1900 I worked out and used at the Children's Hospital an exact apparatus of this sort, consisting of a tube in the wound, passing through and sealed to a square of rubber dam, covering the opening and the wound; held flat by adhesive straps, so placed at each corner as to produce light tension in the square of rubber and prevent wrinkling; held adherent by a film of glycerine between skin and rubber, with a tube leading from the drainage tube to a "catch-bottle" for pus; a bottle from which another tube led to a bottle serving as a negative pressure chamber. From this bottle, at the bottom, was a tube leading down to a pan of water. In the cork of the bottle was a tube connected with the bulb of a Davidson syringe. The difference between level of the fluid in this reservoir bottle and the level in the open pan below, was the measure of the negative pressure tension actually exerted on the lung. This tension could be increased by a squeeze or two on the syringe bulb.* I used this on twenty odd cases. It is not hard to handle, and I learned some facts.

1. Tension corresponding to a column of over 30 inches of water often produces pleural hemorrhage.

2. A column of over 20 inches is never advisable even in obstinate cases.

3. Ten inches is ordinarily enough.

4. Negative pressure increases transudation; the pus grows thinner but more in amount.

* This is almost exactly the scheme that I later found described by the Swiss surgeon Revilliod.

5. Absolute reexpansion does not secure prompt healing though drainage be perfect. In cases with great prostration and low nutrition, even this exact apposition of surfaces may have to continue for weeks before we are secure against recurring collapse, when tension is removed.

This exact negative pressure is the ideal both as regards drainage and reexpansion. It is a troublesome affair, however, and most nurses are a little dense about it.

From a practical point of view the valve is often efficient in convalescence, and in many cases from the beginning, if the patient will cooperate with us. The valve produced by sewing a skin flap over the end of the tube does not appeal to me. Theoretically, I object because it drains pus under the skin instead of outside it; practically, in all the cases in which I have seen it used, it failed to work—as a mechanical proposition. If we really want a valve, let's have a real valve!



FIG. 2.—Valve Dressing in Situ.

All one has to do is to stretch a square of rubber dam over the tube end, *guy it under slight tension* with an adhesive strap at each corner, run a little glycerine under it and put on a swathe. That's all! The rest is mostly up to the patient. If he coughs or breathes hard, he will make the valve efficient; if he is languid, we give him the well known Wolff bottles to blow. Let him make it his life work, for the moment, to blow a red fluid from one bottle to the other, and his valve will work and his lung will expand.

The question is constantly under discussion of the treatment of chronic empyema. Leaving aside for the moment the indisputable fact that chronic empyema represents the results of in-

competent treatment of acute empyema,* let us see what is to be done with the chronic cases.

The favorite operations have been those of Oestlander and Schede. Both these are frankly deforming operations, applicable only to cases in which re-expansion is despaired of; in which the lung is "given up." The operation is then one simply to enable the closure of a rigid-walled cavity by removing the bony support of one wall and letting it collapse. I can see where it may be admissible to do this in a cavity communicating with an open bronchus. There is nothing else to do in such cases, though I hope we shall presently have something better to offer than these frightful operations with their deforming results, to say nothing of the still high mortality.

Delorme's operation of decortication (laterly rediscovered by Fowler and tagged with his name in this country) offers more; gives a chance for the sick lung to re-expand. Sometimes it does this without further ado—sometimes it does not. If it does not, it is our duty to aid re-expansion by using negative pressure. Negative pressure in my hands has been so successful that in a considerable series of empyema cases (100 to 150) I have done no Schede or Oestlander operations, and but one Delorme operation, and even in this case, utilized suction apparatus and valve dressings to get complete cure. In one case, of many years' duration, with a leak in the lung, I have proposed a Schede operation,—proposal declined. This series includes one case of three years' duration, and a number of cases lasting many months before I saw them.

I believe that proper utilization of our knowledge of pneumodynamics, proper and intelligent use of negative pressure methods of various sorts, will leave us with a lower mortality, with fewer—nay, with almost no—chronic cases, and will furnish us with adequate means of treating such chronic cases as come to us without frequent resort to the radical and deforming operations of the past.

* Save in the rather rare cases in which a leak in the lung precludes proper treatment by negative pressure.

IV.

THE TREATMENT OF CHRONIC EMPYEMA.*

BY F. B. LUND, M.D., BOSTON.

THE treatment of chronic empyema offers to the surgeon problems of the greatest interest and difficulty. The longer one's experience with this disease, the more one is struck with the variation in the problems presented. Encapsulated or localized empyemata present problems very different from the cases which occupy practically the whole chest, in which the lung lies in

* Presented before The Massachusetts Medical Society, June 9, 1915.

the costo-vertebral gutter, occupying often an inconceivably small space. Encapsulated empyemata may be anywhere in the chest: high up against the outer wall, between the inner surface of the posterior lobe and the vertebral column,—a position in which it may easily escape our diagnostic efforts,—between the lobes of the lung, between the inferior surface of the lung and the diaphragm; and in these various positions, require varying incisions and methods for their treatment.

The principles of the treatment of encapsulated empyema when chronic are no different from those of the general variety; but owing to the smaller size of the cavity, the problems presented are usually more simple.

The commonest causes of chronicity in empyema are: 1. Too long delay in the primary operation. 2. Inadequate or ill-placed drainage. Drainage, in the writer's experience, is likely to be inadequate when attempts are made to apply suction apparatus for the maintenance of negative pressure in the chest. In these forms of apparatus a smaller tube is apt to be employed than is the better practice, and while pneumothorax may be prevented, occasional plugging and backing up of pus are unavoidable, and these do more harm than would the admission of air in connection with a larger tube and drainage opening. The employment of a suitable valve, by the use of rubber tissue, or, as the writer prefers, of a valve of skin over an obliquely placed tube, to prevent the inrush of air into the chest cavity during inspiration, the writer believes, has an important place in favoring the expansion of the lung, and therefore the prevention of the formation of a stiff-walled non-collapsible cavity; in other words, of a chronic empyema. As this matter belongs not to the treatment of chronic empyema, but to its prevention, the description of the method of the oblique tube and skin flap will be given at the end of the paper, for the writer believes that he has found it of marked service in avoiding the undesirable conditions the treatment of which is under discussion.

When an acute empyema is opened and the pus evacuated, in ordinary cases we have a cavity left whose inner boundary is the surface of the compressed lung, and whose outer the chest wall with its ribs, intercostal muscles, spine, *et cetera*. It is evident that, if the lung at once expands to its normal size and can be made to remain in contact with the chest wall, the condition will be cured. In early operations, when the compression of the lung is easiest, this will take place; and if the anesthesia is light, or local anesthesia is employed, when the patient coughs at the end of the operation, the lung will come out and fill the opening; and if the inrush of air can be prevented at the same time that free drainage is maintained, the cavity may remain obliterated and the cure be rapid and complete. In old or neglected cases, where the pus has been present for a long time, however, the lung is

covered with a thick coating of partly organized fibrin, which may be a quarter to a third of an inch thick. The surface of this membrane is concave to the examining finger and convex to the lung. It is stiff and leathery, and may be further reinforced by a chalky deposit of lime salts. It may and does so compress and bind down the lung that it does not expand, and after drainage a chronic suppurating cavity remains which can be closed only by the collapse of the chest wall down upon the lung, in such a way as to obliterate the cavity. This collapse in adults is prevented to a large extent by the rigidity of the ribs and cartilages, so that while nature, by the crowding together of the ribs and sinking in of the chest, may produce partial obliteration, a chronic suppurating cavity, though of smaller size, is left behind, and a constant discharge, with fever and malaise, emaciation and asthenia, are present. In children, whose softer bones and more movable cartilages may allow still greater collapse of the chest, chronic cavities may come nearer to obliteration in this way, but the obliteration is usually incomplete, and attended by distressing deformity of the chest, and curvature of the spine toward the affected side.

The earlier operators who attacked this problem all attempted to allow the collapse of the affected chest by resecting its bony walls. This object was attempted by multiple resections of greater or less portions of the ribs which formed the roof of the cavity, and with it the name of Oestlander, of Helsingfors, is associated. His monograph was published in 1879; and while multiple rib sections may have been, and probably were, done by others at about the same time, he deserves the credit of placing it upon a firm basis. He resected varying lengths of from four to six ribs, according to the size of the cavity, in order to allow the chest wall to collapse, and reported his successes and failures. The operation was tried everywhere, and with varying results. There can be no doubt that in the exhausted and febrile subjects of chronic empyema, the operation was sometimes formidable, and that in children permanent curvatures of the spine and collapse of the chest wall had to result. In the unsuccessful cases, the chest wall was found not to have collapsed sufficiently to obliterate the cavity. Such collapse, if it did not take place immediately after the operation, was later prevented by the regeneration of the resected ribs from their periosteum.

In 1890 Sehede, of Hamburg, brought out his admirable paper, in which he first presented a real reason for the failure of the obliteration of empyema cavities, namely: that granulation tissue never grew from pleural surfaces, which fact tended to prevent adhesion and obliteration of empyema cavities even in fairly close contact. He also proposed his formidable yet logical operation of the removal of the ribs with the intercostal muscles and parietal pleura over the surface of the cavity and allowing the skin to settle down directly onto the surface of the lung.

This operation, while successful in those patients who survived it, is most extensive and attended by severe mutilation. Except in patients of extraordinary strength and vitality, it may be impossible to accomplish. If successful, it means an extremely marked deformity and collapse of the lung.

In 1893, Delorme, a French surgeon, suggested excision of portions of several ribs, sufficient to get the hand into the chest, to allow the peeling off or decortication of the thick, leathery layer of fibrin which covers and binds down the lung. He showed that by slitting the membrane longitudinally and inserting the finger under it, it may be peeled back, exposing the fresh, raw, bleeding surface of the lung. After it is thoroughly peeled back, and as far as possible removed, the patient at the close of the operation is allowed to come out of ether, and when he coughs the lung expands and fills the cavity of the chest; sometimes coming completely in contact with the chest wall, sometimes not. A tube is then placed for drainage of blood and serum, and a large adhesive dressing applied. This large adhesive dressing, if it can be left on for two or three days, becomes soaked in serum at once, and acts as a fairly efficient valve to prevent the admission of air in inspiration, so that when it is removed the lung may remain adherent to the chest wall. This operation was performed at about the same time by Fowler, in this country, but it seems to me on review of the evidence that Delorme reasoned the matter out and applied the principle intelligently, while Fowler blundered into it and did not know what he had done till afterward. However, the principle became gradually established, and Dowd, Lloyd and others reported its successful employment. Ransohoff advocated, instead of decortication, a series of multiple criss-cross incisions through the thickened pleura to allow the lung to expand.

Beckman, from the Mayo clinic, has recently published an interesting account of several successful cases.

The reasons why I personally prefer decortication I have given in a paper published in 1911. I have since that time seen no reason to modify the technic therein advocated. My own incision and rib resection for acute empyema is performed in the posterior axillary line and concerns the ninth or tenth rib, or both. With the primary incision in this situation, the empyema becomes chronic and decortication is necessary. If we start from this point to open up a cavity extending vertically the incision must be carried upward, and an inch or two of the eighth, seventh, sixth, and fifth ribs resected, and the pleura cut through; then the ends may be retracted, the cavity inspected, the hand introduced, the pleura incised with the knife followed by long scissors, and peeled away.

In case the primary drainage opening is further in front, say the seventh or eighth rib in the anterior axillary line, the necessary opening may

be made by carrying the incision backward and upward in the intercostal space and employing the rib retractor, as recently suggested and practised by Dr. John Homans. The wide springing apart of the tissues stiffened by long-continued infiltration may, however, cause serious embarrassment of respiration; and personally I think the result is attained more simply and with less shock by carrying the incision upward across several ribs, resecting an inch or two, and cutting across the pleura between. The bleeding from the intercostal arteries gives surprisingly little trouble, and may be easily controlled by clamps. However, the method of getting at the thoracic pleura which may suit one man will not suit another, and the main point is to get at it and get it off.

The employment of intratracheal anesthesia has been of the greatest benefit in these cases of chronic empyema, as it enables us to blow up the lung during the operation, to see the effect of what has already been done and determine as to the necessity of further procedures. The lung may thus be held against the chest wall till the operation is completed and the dressing applied, so that we are not dependent upon the spasmodic coughing of the patient, which works by contrast both irregularly and inefficiently.

In an interesting presentation of the subject by Dr. John Homans mentioned above, he refers to the fact that repeated operations are frequently necessary. This has been true in my experience. Decortication may be only partly successful and have to be followed by rib resection over a small area that refuses to heal. Rib resection may have to be supplemented by decortication. In the after-treatment, the use of the blow bottle, and the rubber valve proposed by Cotton, should not be neglected. A device which I have employed successfully in two or three cases is to leave several patches of membrane on the lung, while peeling off the rest, and passing catgut sutures through them as holding points, and suturing the viscera to the parietal pleura, generally carrying the catgut around a rib.

Schede's principle that the pleural surface does not granulate is met by decortication, in that the actual visceral surface layer of the pleura, which consists of a single layer of cells, is scraped off, leaving a bleeding raw surface. The parietal pleura also ought to be removed to bring the granulating surfaces into contact. Personally, I have found the attempt to peel the parietal pleura off the concave, rigid, inner surface of the chest too difficult, bloody, and exhausting a procedure, and so far have succeeded or failed without it.

Of recent years, considering the large number of acute empyemata at the hospital, we have had a surprisingly small number of chronic cases to treat. This is due, first, to early operation; the cases are frequently now transferred from the medical side before the exudate has become more than sero-purulent; second, to the thorough re-

moval of the fibrin; third, to adequate dependent drainage; fourth, to the valve, either of skin or rubber, applied over the tube; and fifth, to the less frequent dressings during the after-treatment, and the prevention as far as possible of the entrance of air while allowing the escape of the pus.

In a recent case of double empyema on my service, the application of these principles has led to a brilliant success in a case that on one side at least had threatened to become chronic.

In my own experience, as in that of Dr. Homans, multiple operations have been necessary, especially in the long-continued cases of empyema totale, where the cavity has occupied the whole chest. In these cases, multiple operations have been frequently required, and there have been failures and fatalities. In localized chronic empyemata, decortication has usually given most brilliant results, and been successful the first time.

Decortication is not a cure-all or specific. It must be thoroughly and intelligently used, and must be preceded and followed by all the tricks and dodges which experience can suggest to secure lung expansion, except those methods which imply suction apparatus and provide an inadequate drainage opening. It may have to be supplemented in certain obstinate cases by rib resection.

On the whole, however, and properly used, we must regard it as an invaluable method in cases where the later simple methods fail to cure, and the ultra radical methods are sure to kill our patients.

I hope an increasingly large number of surgeons will familiarize themselves with the method and become acquainted with its advantages. It is not a minor operation, to be undertaken lightly; nor is it, on the other hand, of difficult technic. It looks the first time like a bloody and difficult procedure. It requires, among other things, good judgment as to how far to go and when to stop. It gives brilliant results. All of which ought to make it interesting to the surgeon.

I think it may be regarded as fair in this paper to allude to a device of extreme simplicity which has been of the greatest value to me in the treatment of acute empyema, and therefore the prevention of the chronic form, an arrangement which is of special value during the first few days of the treatment, when the maintenance of the expansion of the lung is of the greatest importance, and which in my experience has often secured such expansion as to allow the removal of the tube in three or four days. It consists in the use of the skin as a valve over an obliquely placed tube.

An incision is made over and parallel to the rib, below the one to be resected, and is about four or five inches long. The upper margin is retracted upward to the level of the upper border of the rib above, which is resected. The

tube, just long enough to reach from the lower border of the skin wound into the chest, is cut very obliquely, so that in place the skin lies over its wide opening without being pushed up. The extreme lower margin of the tube, opening outward, is sutured to the lower margin of the wound. The skin flap, formed by dissection, is sutured on either side of the tube to the lower margin of the skin wound, and on inspiration will be sure to suck in over it and prevent the entrance of air. On expiration, the skin is blown outward and allows the pus to escape.

This is very simple and cannot get out of order. When the tube has to be removed, say in four or five days, no more drainage may be necessary as the lung has often expanded. If it is necessary, then or later, one of the rubber valves may be better. For the first few days, however, the skin flap has very great advantages. It cannot get out of order, does not require attention, affords free drainage. The pressure of a tight bandage over it only renders it more efficient. Some of my friends, as well as myself, have found it very useful.

V.

LUNG ABSCESS AND BRONCHIECTASIS FROM A SURGICAL POINT OF VIEW; CERTAIN END RESULTS OF ACUTE AND CHRONIC EMPYEMA.*

BY WYMAN WHITTEMORE, M.D., BOSTON.

I HAVE been asked to speak to you on the surgical aspect of lung abscess and bronchiectasis; and to give you certain statistics of end results of acute and chronic empyema.

Several months ago I looked up and published in the BOSTON MEDICAL AND SURGICAL JOURNAL the end results of cases of acute and chronic empyema at the Massachusetts General Hospital.

I traced as far as possible the cases operated on from January 1, 1901, to January 1, 1911.

I was a good deal impressed by the fact that out of 269 cases of acute empyema operated on during this time, there was a mortality of 20%, and that out of one hundred cases that left the hospital alive, 20 became chronic.

Out of 154 of these cases that have been traced to a definite end result, there were 54 that died following operation (giving a mortality of 20%). Of the 100 cases that left the hospital alive, 68 are well at the present time. By this I mean that there is no discharging sinus, no bad effects from operation, and that they are able to attend to their regular occupations. Twenty became chronic. These have a persistent sinus and a cavity with a much thickened pleura as a rule, and are more or less chronic invalids. The remaining 12 have died since leaving the hospital. I was able to find out the cause of death in nine

of these. There was no connection between the cause of death and their empyema.

An autopsy was performed on thirty of the cases that died following operation; 14 died from septicemia, 5 from pneumonia, 3 from pyemia, 1 from peritonitis, 2 from multiple abscesses of the lung, 1 from defective closure of the foramen ovale and thrombosis of the left pulmonary artery, and in 4 no definite cause was found. The most common cause of death was septicemia, the majority being streptococcus septicemia and a few pneumococcus septicemia.

There were 35 cases of chronic empyema operated on during this period of ten years. I have traced the end results in 23; 15 are entirely well, 4 did not improve by operation, that is, they have a persistent sinus and are chronic invalids. Two cases died following operation, and 2 have died since leaving the hospital; cause of death not known. Of the 2 cases that died in the hospital, one had an autopsy performed, cause of death being adeno-carcinoma of the main bronchus and extensive bronchiectasis.

The various classical operations were performed: 4 cases had an excision of ribs and parietal pleura excised (Schede operation); 2 are well, 2 not traced, no mortality. Five cases had a decortication of the lung (Fowler operation); 3 are well, 1 did not improve, 1 died; a mortality of 20%. Twenty-one cases had an excision of ribs and pleura euretted (Oestland operation); 1 died, giving a mortality of 5%. Seven are well, 2 not well, 2 have died since leaving the hospital. The remaining nine have not been traced. The other cases had minor operations performed, as, for example, the removal of an old drainage tube or merely euretting the sinus. All these cases are well with one exception.

I feel that the subject of bronchiectasis is almost entirely a medical one. However, a certain amount of surgery has been done. I have tried to take a position between the enthusiastic thoracic surgeon and the more or less pessimistic medical man.

I shall not take up the bacteriology, symptoms or diagnosis.

A few of the causes of bronchiectasis are the following: Unresolved lobar and broncho-pneumonia. Stenosis of the bronchus from a new growth in its wall. Inhalation of foreign bodies. Pressure on the bronchus from outside, as, for example, from an aneurysm or mediastinal tumor. In rare cases bronchiectasis follows a chronic empyema.

In the majority of cases the disease is located in more than one lobe. Occasionally it is in both lungs. The cavities vary from a minute size to those as large as a hen's egg. Where the disease is due to the inhalation of a foreign body or to stenosis of a bronchus it is unilateral for a time at least.

Surgery has nothing to offer to those cases in which the disease is in both lungs. But where

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it is unilateral, especially if limited to one lobe, the surgeon may feel a little more hopeful of eventual success.

Various surgical procedures have been undertaken. When one thinks of the pathology of the disease, one realizes the hopelessness of trying to establish drainage. This may be undertaken as a last resort in cases of complicating gangrene in order to save life, but the outlook is far from favorable.

Some years ago it was found that certain cases of tuberculosis were benefited by partly or completely collapsing the lung with nitrogen gas, and thus it seemed possible that bronchiectasis might also be benefited by collapsing the lung. This has been done in two ways: by extensive rib resection and by the introduction of nitrogen gas. Neither method has produced many good results.

Extensive rib resection has certain dangers:

1. Sudden collapse and death from disturbance to the respiratory and circulatory mechanism.

2. Through the patient's cough being checked following operation on account of pain, the secretion accumulates and may flow over into the other lung.

3. Spreading of the infection through the whole system, so that the patient dies from a septicemia.

Four cases have been operated on at the Massachusetts General Hospital. Two died following operation. In both cases an autopsy was performed. One case died from a pneumococcus septicemia, the other case showed extensive bronchiectasis and pneumonia with areas of necrosis in the lung. The other two cases left the hospital alive. One of them is no better, having the same symptoms as before operation. The other case is well. He was last heard from two years and two months after operation.

The introduction of nitrogen gas into the pleural cavity, thus producing an artificial pneumothorax and causing a partial or complete collapse of the lung, has been tried in some cases, particularly in those where the pleura is not adherent.

I have been unable to find any end results of this method. One case has been treated in this way at the Massachusetts General Hospital, but that case has not been traced.

A third method is that of lung excision. This can be attempted when only one lobe is diseased, which is exceedingly rare. The successful cases have followed a series of previous operations that have brought about a contracture of the diseased lobe.

It is the ambition of thoracic surgeons to do this operation in one stage, but up to the present time almost all patients so operated on have died.

The pneumothorax following operation is dangerous. Fluid may accumulate in the pleural cavity, and this may become infected, either from

previous infection or from leakage from the bronchi at the root of the lung.

The whole circulatory and respiratory mechanism is suddenly upset.

It seems better, therefore, at the present time to allow the patient to become accustomed to the change in circulation and breathing by a retraction or collapse of the lung previous to excision.

I have been unable to get any satisfactory end results. Some half dozen surgeons have each reported one or two successful cases. But how many unsuccessful ones they have had I have not found out.

There has been one case at the Massachusetts General Hospital. This was successful. It was operated on in 1909 and reported in 1912 by Robinson. This case had several operations previous to excision of the lower lobe, so that there were many adhesions and the lobe was more or less contracted. The patient made an easy and excellent recovery. Several months after operation he had four small bronchial fistulae. Two of these were successfully closed. Two years later he was in excellent health. In 1913, four years after excision of the lobe, he died in Canada, but whether or not his death had any connection with these operations is not known.

In marked contrast to bronchiectasis I feel that the treatment of lung abscess belongs to the surgeon in the great majority of cases.

The symptoms, bacteriology, and diagnosis I shall not take up.

The chief causes are lobar and broncho-pneumonia. A good many cases are due to the inhalation of foreign matter. For example, the inhalation of blood and mucus during operations on the nose and throat or during the extraction of teeth while the patient is under a general anesthetic. Occasionally a real foreign body has been found. In one of my cases, a child, a small piece of a peanut was found. An embolism from an infected thrombus may become lodged in the lung and thus start the formation of an abscess. Occasionally an empyema may rupture into the lung, but I believe this is more apt to cause gangrene than an abscess. Actinomycosis is a definite cause. There have been two such cases within a year or so at the Massachusetts General Hospital. Occasionally there is a case following abdominal infection.

The diagnosis is entirely in the medical man's hands.

An abscess may be in any part of the lung, although it is said that they occur more frequently in the lower lobe than in any other, and are apt to be near the pleura. But in my limited experience I have not found this to be necessarily true.

The x-ray is extremely important in definitely locating the abscess before operation.

The prognosis depends upon various factors and in each case it must be determined separately. It depends upon the general condition and age of the patient, and to a certain extent upon the location of the abscess; as one situated

in the posterior part of an upper lobe is much more difficult to approach and find than one near the pleura in the lower lobe. It also depends upon the duration of the process, the theory being that an acute case tends to recover more readily than a chronic one, because in a chronic case the surrounding connective tissue may prevent the abscess walls from collapsing. I am not sure that this necessarily works out in actual practice, as I have seen several chronic cases get well as rapidly as acute cases after operation.

The prognosis is better in cases of a single abscess than in those in which there are several.

It should be remembered that a complete recovery may occur spontaneously, but this is extremely rare.

I think the general feeling is that if an abscess does not show signs of marked improvement in two or three weeks it should be operated on.

In the operation for lung abscess I believe intratracheal ether should always be used, although cases have been successfully operated on without it. My reason for this is that there is a good deal of danger of making an opening in the pleura and collapsing the lung when, as is very often the case, the pleura is not adherent. One can never tell before operation whether the pleura is adherent or not. By using intratracheal ether this danger is done away with. Besides which the ether can be accurately adjusted, the embarrassment caused by spasm of the glottis, the accumulation of mucus in the pharynx and the dropping back of the tongue are entirely avoided.

Robinson has collected 1400 cases of intratracheal ether from 35 surgeons. Of these, seven died after the operation, of which only two were credited to the method. In one a broncho-pneumonia was induced and in the other death occurred following emphysema, in which it is stated that a rupture of the lung took place, as a result of the tube being forced into one of the main bronchi. Tracheitis and pharyngitis occurred in only 18 cases.

Sometimes the patient while going under ether will cough so severely that he will completely empty the abscess cavity. This latter may be very disconcerting when one is expecting to demonstrate the opening of an abscess.

It is much safer to do the operation in two stages, and quite necessary to do so when the pleura is not adherent. For although the lung may be well sutured to the pleura before opening the abscess, yet there is great danger of leakage of septic material into the pleural cavity that will eventually form an empyema.

A large skin and muscle flap should be turned up and a section from three or four ribs in the region of the abscess removed. The intercostal muscles should then be cut away and the field made perfectly dry. If the pleura is not adherent, and it frequently is not, the lung can be seen moving under it. Two or three sponges are then laid against the exposed pleura and the skin and muscle flap sutured into place. It is not neces-

sary to suture the lung and pleura, but it may be done before laying the sponges on.

After three or four days at the second stage of the operation, the pleura will be found to be firmly adherent to the lung. An incision is made through the pleura and into the lung, and the lung explored for the abscess. One can explore with a trochar, but I feel it is better to use one's finger as the trochar may puncture a vessel and cause severe hemorrhage. When one is lucky one opens into an abscess with frank pus. However, in a few cases an indurated mass is broken into, from which comes foul smelling bloody material, with perhaps a very little pus or even none at all that is visible. A soft rubber drainage tube should be fastened in and the skin partly closed.

Some of the dangers attending operation are: sudden respiratory disturbances, collapse and death soon after the operation; pneumothorax, empyema, or hemorrhage into the bronchi. One case has been reported in which a blood clot lodged in the larynx.

The first few days following operation are often stormy, as there may be considerable shock. The patients frequently cough a great deal on account of the irritation of the tube in the lung. After three or four days this gradually quiets down and in a week or ten days the tube can be replaced by rubber tissue, which will not be so irritating.

The end results of cases of lung abscess at the Massachusetts General Hospital were looked up and reported by Dr. Lord in 1906. Last year Dr. Scudder reported 16 additional cases. I have combined these two reports to get the following statistics:—

There have been 27 cases operated on: 8 are entirely well, 2 did not improve following operation, 2 have died since leaving the hospital, cause of death not known, 8 have not been traced, 7 died following operation, giving a mortality of about 25%. Three of these died from multiple abscesses of the lung, 1 from multiple abscesses of the lung and liver, 1 from multiple abscesses of the lung, liver and brain, 1 from septicemia, and in 1 case the cause of death is not known.

As a summary I should say:—

First, that although the operation for acute empyema may be a very simple one, yet the results have been far from satisfactory.

Second, that after an acute case becomes chronic, the outlook for the patient becoming a useful member of the community is very questionable.

Third, I consider that surgery has very little, if anything, to offer cases of bronchiectasis at the present time.

Fourth, the surgery of lung abscess is most encouraging, and there are constantly a greater number of cases being successfully operated on.

This, I think, briefly covers what surgery has been able to accomplish along these lines up to the present time. They are subjects in which

more and more interest is being taken, and I think I am not too optimistic when I say that we look with confidence towards future results.

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DISCUSSION.

DR. G. G. SEARS, Boston: The pathological conditions which have formed the subject of this meeting may all be grouped under one general heading—non-tubercular suppuration of the lungs and pleura. As it is a surgical axiom that pus should be evacuated, if possible, the problem which these conditions present is whether or not to operate, and when and where.

Since the conservatism of the internist toward surgical procedures has been criticized this afternoon, I would remind the audience that the pioneers in lung surgery,—Lenhardt, Quincke, Mosler and Brauer,—were all essentially medical men who recognized the inability of medicine to cope with these processes and turned to surgery as the only sure means of effecting a cure.

The first essential of successful treatment is an accurate and early diagnosis, for if operation is indicated it should be one of choice and not of necessity. We cannot lift the lid as in abdominal cases and explore the contents of the chest from conviction that there is something wrong within it. A clear idea of the site and character of the lesion is a necessity. I fear that Dr. Brown, perhaps from an appreciation of his own difficulties in interpreting the x-ray findings in spite of, or possibly because of, his large experience, has spoken more flatteringly than is justified of the results obtained by physical examination at the bedside, since the most careful clinical examination must at times leave the diagnosis in doubt, and while the x-ray is frequently not required, it is often indispensable and may lead to a radical change of opinion.

Recent literature seems to show the great value of the bronchoscope. It appears to have been neglected here in Boston, but I hope that we may soon have a corps of men trained to give help in this way in doubtful cases.

What I have to say will be largely confined to empyema on account of its great clinical importance, partly because it is the commonest of the lesions under discussion, and partly because, when neglected, it leads to other suppurative

conditions in the lungs. Its detection is often difficult. As I look back over my own failures I am convinced that they resulted almost invariably from neglect to lay sufficient stress upon three fundamental propositions which almost deserve to be classed as axioms. The first is that unresolved pneumonia is a pathological myth. If the temperature keeps up and the signs persist after due course of time, something is amiss. If we can exclude complications outside the lungs as a cause of fever, e.g. otitis media, pericarditis or endocarditis, we arrive at a diagnosis by exclusion of either pulmonary abscess or empyema, and of these the latter is vastly more common. The second proposition is this—that the diagnosis of pleural effusion is made with the fingers, not the ears. The decisive signs of effusion are absence of fremitus, dullness on percussion and displacement of organs, all of which are made out with the hands. Corroborative evidence may be obtained by auscultation, but quite as often the stethoscope leads to confusion, for we may find loud bronchial respiration, loud bronchial voice, not always oegophonic, and even râles.

The third proposition is that when one is in doubt between a pleural effusion and consolidation of the lungs, it is always the former.

These are generalizations, and all of you will recall numerous exceptions, but the point to be emphasized is that under such circumstances the burden of proof is on the physician to show that it is not an empyema. If not completely satisfied he should summon other aids; among these the x-ray is most important, but the value of the aspirating needle should not be overlooked. Repeated punctures may be necessary to discover the site of the pus. I agree with what both Dr. Lord and Dr. Lund have said regarding possible dangers from the needle, particularly in the presence of suspected pulmonary abscess, but if care is taken in the selection of cases more harm is done by not using it than by using it, for an empyema may be of small size and lurk in unexpected places. It may occupy but a small space between the visceral and parietal pleura, it may be interlobar, or it may be located just above the diaphragm. The latter situation adds one other element of difficulty because the symptoms may be chiefly abdominal and simulate those of subdiaphragmatic abscess or appendicitis. In order to illustrate how confusing such a case may be I will give briefly the history of a patient seen a few years ago in the northern part of the state. He was a young man who had been complaining for several weeks of pain over his right hip. At first nothing was found to account for it, but later a large right sided pleural effusion developed. The temperature curve was so suggestive of pus that the surgeon, who had been called in consultation immediately opened the chest without previous exploratory puncture—nothing but clear serum escaped. After the operation his temperature continued its previous course, his general condition

tion grew worse, and at the time of my visit he was in a very critical state. Physical examination, owing to the free opening in his chest, was of little value so that the diagnosis of the underlying lesion rested largely on the history, which seemed to me to point to an appendicular abscess which had extended upward under the diaphragm, the pleural effusion being secondary to that. As operation appeared to give the only possible chance of recovery the region between the liver and diaphragm was explored but nothing was found except some soft recent adhesions. Failing here, his chest was again opened and a small collection of pus above the diaphragm was found. His temperature then fell and he recovered sufficiently to leave his bed, when a purulent pneumonia developed and proved fatal.

There is one etiological factor causing suppurative processes in the lungs which I do not think has been mentioned this afternoon, namely syphilis, yet it deserves strong emphasis. In spite of the great advance during the last ten years in our knowledge of the disease we have hardly begun to make a clinical application of that knowledge. Most of the cases still pass unrecognized and masquerade under other diagnoses.

DR. JOHN HOMANS, Boston: So many very interesting points have come out in this symposium that I shall confine my comments principally to the papers of Dr. Cotton and Dr. Lund, for it is with their subjects that I am most familiar.

I am in thorough agreement with all that Dr. Cotton had to say as to the dynamics of intrathoracic surgery. It seems to me that the expansion of the lung after operation in acute or chronic empyema depends on the establishment of a moderate amount of negative pressure. It depends also apparently on the amount of vitality and enthusiasm which the patient has. In other words, a patient adequately drained and with negative pressure applied in some form, may never cough, may lie supine in bed, and make a poor recovery. I have such a patient now who is perhaps getting well, but I am trying to arouse a little enthusiasm, even trying to make him excited, so that he will show a little more interest.

Dr. Cotton spoke of using a long tube for drainage of acute empyema, and I think that this is a very important matter. The tube should go well within the chest,—if not, it very often happens that in the early part of convalescence the lower part of the lung will stick to the chest wall, perhaps above the end of the tube, gradually shutting off the rest of the empyema cavity from outside. I believe that the tube should be left a long distance within the chest wall,—a soft tube, to be sure,—and left in until the large cavity becomes a broad, flat cavity, the flat cavity becomes a broad ribbon, the flat ribbon becomes a narrow ribbon, and finally closes.

As to chronic empyema, I should like to arbitrate between Dr. Lund and Dr. Cotton. I do not quite agree with either, and the arbitrator

should always expect to be abused by both sides. I am inclined to think, judging from the several operations of decortication I have done, that unless the membrane covering the lung is so placed as definitely to hold down the borders of the lung and prevent it from expanding, a matter which Dr. Lund himself pointed out to me once, it is not so very necessary to remove the false membrane which covers the viscerai pleura. It is likely that if proper drainage is established such a cavity will close. If the surface of the lung is convex the lung can never expand further unless the membrane is removed.

Nevertheless, I am inclined to think that if cases of chronic empyema were thoroughly drained with a large opening, a large tube placed well within the cavity, and a proper valve applied, that this should be done before the operation of decortication is attempted. If that does not produce the desired result, decortication should be tried. In this I am reversing a belief which I formerly held, or rather, I am not quite sure enough of the indications for decortication to propose it until proper drainage has proved a failure.

As to the access to the cavity, Dr. Lund spoke of an operation, which I have done, of going between the ribs. This I think it dangerous, and do not recommend it, for when the ribs have been spread apart some distance it seems to me there is grave danger of tearing into the mediastinum. In future I should excise several ribs, according to Dr. Lund's method.

As to the failure of granulations to grow in the pleural cavity, that is a very interesting matter. It is apparently a part of a tendency of the thoracic cavity to pour out fibrin in enormous quantity when it is infected. This seems to me to be due to the kind of bacteria which are present, rather than to peculiarities of the pleura, for there is not any difference which we know of anatomically between the pleura and the peritoneum. It is not surprising that this fibrinous exudate forms a thick membrane on the outside of the lung, and being composed of many layers of fibrin it has a very poor blood supply, never organizes well, and will not adhere to an opposing surface, as Dr. Lund has said, for a very long period. This is one of the important matters to consider in treatment. If the cavity is such a shape that it is unlikely to close by any mechanical means, then its walls must be rendered collapsible, or the lung must be made to expand and fill it. In either case the thick false membrane must usually be removed from the lung or from the chest wall if the cavity is to be permanently obliterated.

As to the operation for abscess in several stages, which Dr. Whittemore has spoken of, I think that principle might well be applied to other lesions than abscess. I feel very strongly that in operating on those patients with chronic empyema, who have been sick for a long time, it is better to begin slowly, and if you can get their

confidence and if they are willing to stay in the hospital, operate by degrees, by rib resection first, then exploration of the chest, and drainage. Such patients improve enormously as the result of perfect drainage, and it seems only fair never to impose on them at first any radical operation which is at all likely to be fatal, because these operations are not necessary as immediate life-saving procedures in chronic empyema, though they may perhaps be in lung abscess.

DR. J. S. STONE, Boston:—Empyema in children is essentially the result of poor hygiene. About fifty cases are treated each year at the Children's Hospital. They come for the most part from the more crowded sections of the city, where the children get little fresh air and sunshine. This is in striking contrast with the not exceptional experience of a physician with a large practice in a healthy suburb, two cases in twenty-one years.

Empyema in children is almost invariably a sequel of pneumonia. In pneumonia in children there is very commonly an involvement of the pleura as well as of the lung. The degree of pleural involvement and the power of resistance of the child determine whether an empyema results. The previous health of the child, as well as the care and surroundings during the acute illness are thus important factors in the incidence of empyema.

The empyema may be general, or localized by limiting pleural adhesions. When localized, the ordinary site is in the lower posterior part of the chest. A very few are interlobar. Any localization is possible. I have operated upon one patient in whom the pus lay between the lung and mediastinum, behind the second costal cartilage, close to the sternum.

The possibility of the direct extension of empyema beyond the pleural cavity and of metastatic foci of infection must be borne in mind.

Occasionally, of course, empyema is seen as a part of an overwhelming and obviously fatal infection of the serous membrane,—pleura, pericardium, meninges, joints, peritoneum. No treatment can avail in such cases.

During the convalescence from an ordinary empyema a metastatic peritonitis may develop very suddenly. In such instances the peritonitis is not secondary to disease in any abdominal organ. Such infections are easily overlooked at first because the explanation of the fresh symptoms is sought for in the chest. Vomiting, abdominal pain and tenderness, wherever located, are the symptoms upon which the diagnosis must be based and prompt surgical intervention undertaken if disaster is to be averted.

Such cases differ absolutely from those in which the pus reaches the abdomen by direct extension. At the present time such cases are less frequently seen than formerly. The catalogue of the Surgeon-General's Library gives one at a glance the literature of empyema about thirty years ago. It is a record of the various

places into which an empyema may extend,—stomach, intestines, esophagus, lung, bronchus.

I want, however, to call particular attention to the extension of the process below the diaphragm into the extra-peritoneal tissues.

Three cases of empyema discharging at the umbilicus have been treated in the Children's Hospital. In one there had been a perforation of the central fibrous portion of the diaphragm between the reflections of the peritoneum above the liver. In two the spread of the pus occurred behind the erura of the diaphragm in the space through which the lymphatics and other structures pass. The pus in either case extends into the retroperitoneal fatty and cellular tissues. It burrows here with great ease, spreading downward into one or both loins, dissecting away the peritoneum from the muscles outside of the semilunar line, until it reaches the lower portion of the rectus muscle, where there is no posterior rectus sheath. The pus then dissects off the peritoneum from the lower part of the rectus muscle until it reaches up to the navel, where it obtains a vent.

Such cases cannot recover until the pleural cavity is properly drained. There is no peritonitis at all in such cases. The process is wholly extra-peritoneal.

The mechanical side of the treatment has been very thoroughly discussed. Two points deserve emphasis,—thorough drainage and complete immediate expansion of the lung. Thorough drainage requires rib resection. When the internist can predict which cases have masses of fibrin in the effusion and which do not, the surgeon may safely consider simple incision in the latter class. But that time has not yet arrived. Rib resection can be done through a very small incision and in a very brief time,—less than two minutes.

Complete expansion of the lung is helped by extremely light anesthesia. The coughing reflex should not be abolished. The fear of a too sudden expansion is, in children at least, a bugaboo.

Chronic empyema is seen in children practically only after an operation which has not resulted in a cure. In such cases, where much and often very foul, pus has accumulated in the chest, it is wise to be content at first to drain off the pus and later to secure expansion of the lung. The danger of septic absorption is minimized.

The prognosis of empyema in children varies greatly with the age. Children over two years old usually recover. In those under a year recovery is a rare exception. In those between one and two years old the outlook is extremely uncertain. Death is not due to any mechanical cause, such as the backing up of pus. It is due usually to the non-resistance to the infection. The infection often shows itself in patches of pneumonic consolidation in different parts of each lung. Death in the young children usually occurs after a few weeks of gradual failure in

the general condition. The power of resistance fails. Fresh air, sunshine, and good food are the only means of help. The aim of sanitarians must be to do away with tenement house conditions if empyema is to be prevented. Physicians must aim in cases of pneumonia to prevent empyema, if possible, by the best hygienic surroundings during the illness.

DR. FRANK L. RICHARDSON, Boston: It seems to me hardly possible that anything more of value can be added. Most of the readers, however, have not mentioned, or have only slightly mentioned, the question of anesthesia. This plays a considerable part in the recovery of patients, especially in the acute cases. It is my personal opinion that acute empyema in adults, where it is possible, should be operated on under local anesthesia. This avoids a certain amount of anesthetic shock and the thing which always follows ether anesthesia, the lessening of phagocytosis. In children, of course, it is not possible to use local anesthesia to such an extent as it is in adults, and here, as Dr. Stone has pointed out, a very slight anesthesia is desirable. It is only necessary to have your patients unconscious to perform your operation. It is not an operation of great delicacy, and if your patient is under lightly you can make him cough at any time, thus expanding the lung and driving out the pus.

In chronic empyema it is an entirely different story. Where decortication is to be performed, I think it is quite essential that intratracheal insufflation should be used, because here you can control the expansion of the lung very easily. This facilitates the work of the surgeon, and facilitates the work of the patient after the operation is over,—that is to say, if you have expanded the lung and filled the pleural cavity there is so much less for the patient to do.

Lung abscess presents an entirely different question. The cases of lung abscess that I have seen do not respond kindly to ether anesthesia. They cough very badly. They cough up sputum which is loaded with bacteria and there is always the chance of their inhaling some of this material and forming new abscesses. This is very much increased where they are under ether anesthesia. Now chloroform, in my hands, in these cases has proved very satisfactory. The chloroform anesthesia does not irritate the lungs as ether does, and patients have little or no coughing.

I want to enroach on the surgical side of lung abscess for a moment. I think this operation should be done in two stages wherever possible,—the first stage to get your pleural adhesions and the second stage for drainage. These two operations under comparatively light anesthesia I am sure do less harm to the patients than one single operation.

DR. WALTER M. BOOTHBY, Boston: Dr. Cotton referred several times to the dangers of "pleural reflex." Deaths occurring during empyema operations have not been uncommon; that they

are due to reflex irritation of the pleural surfaces is, however, by no means proved. He advises freeing and removal of the fibrin by any handy instrument such as a sound, but opposes the use of an irrigation. Why should the sound cause less "reflex" dangers than the salt solution, especially when the cavity has just contained a litre or more of fluid?

Reflexes, if they occur, would in all probability be transmitted through the vagus nerves. Last year, in order to investigate the possible functions of the vagi over the respiratory mechanism,* Dr. V. N. Shamoff (of Petrograd) and I divided on both sides the pulmonary branches of the vagi. This operation necessitated a great deal of handling, cutting and tearing of the pleura, as well as the application of repeated direct mechanical stimuli to the nerves themselves. In none of the animals operated on did we obtain any evidence of "pleural reflexes." In our earlier experiments we had a few sudden deaths on the table due to an improper conduct of the intratracheal anesthesia.

DR. WHITTEMORE advised the use of intratracheal anesthesia when operating on cases of lung abscess as it would allow the lung to be expanded during the operation. Expansion of the lung is, of course, desirable, if it can be done safely. However, in cases in which the abscess cavity contains an appreciable amount of fluid or is connected with an intrapleural cavity containing fluid, the presence of a tube would be the source of added danger by preventing a free outflow of the pus through the trachea; furthermore, the current of air would tend to blow the pus down into the depths of the opposite lung, with the likelihood of the formation of secondary abscesses. I agree with Dr. F. L. Richardson that under these conditions intratracheal anesthesia would be contra-indicated.

DR. WYMAN WHITTEMORE: In regard to intratracheal ether, which has been said to be dangerous in lung abscess, I believe that it is necessary for the reason that I gave in my paper.

Although ether may be a bad thing to give, yet intratracheal ether I consider a great deal safer than ordinary ether in these cases.

DR. PERCY BROWN: I wish merely to note the spirit of the true internist which has actuated Dr. Sears to speak so modestly concerning the question of the medical diagnosis in these conditions. For my part, I am sure that dependable roentgen diagnosis in pleural cases would have no cause for being if it had not been stimulated by the support of internal medicine.

Dr. Sears's mention of the more routine use of the bronchoscope is an important matter. Systematic bronchoscopy as an especial work would be welcome. Some of our younger men, it is to be hoped, may deem it wise to take this matter up.

* Boothby and Shamoff: A Study of the Late Effect of Division of the Pulmonary Branches of the Vagus Nerve on the Gaseous Metabolism, Gas Exchange and Respiratory Mechanism in Dogs. Am. Jour. of Physiol., Vol. xxxvii, No. 2, pp. 418-431, 1915.

DR. F. B. LUND: I have just one or two things to add. One is that I approve very thoroughly of what Dr. Sears says, that there is no such thing as an "unresolved pneumonia." I do not mean that one should never use the aspirating tube.

Any man who has had experience in these cases will admit that they are often difficult of diagnosis. I think one may willingly admit that the medical men sometimes make the diagnosis before the surgeon does. I recently had referred to me by two medical men a case of double empyema, showing dullness in both backs. The history and temperature looked like double empyema. I tapped in two places without getting pus, and we fell back upon the diagnosis of "unresolved pneumonia," and did not operate. X-rays which were taken did not help us, and the radiologist, Dr. Ellsworth, also thought they pointed to pneumonia rather than empyema. There was no distinct outline to be seen. After five days' waiting, with a temperature running up and down every night and morning, I tapped again on the left and found an encapsulated empyema between the lung and the chest wall high up. The patient's condition not improving, I tapped again on the next day on the left, and by good luck found another encapsulated empyema where I had never found one before,—between the chest wall and the spine. After the drainage of these, she made a good recovery. I simply quote this case as showing the difficulty of diagnosis.

Dr. Honans has spoken of arbitrating between Dr. Cotton and myself. I do not think Dr. Cotton and I are in great disagreement. I have said I believed in trying everything else before resorting to decortication; valves, blow bottles, etc., should be tried. Almost all my patients get well without decortication, but still I am surprised that Dr. Cotton has never had to do it. I have had to do it only three times since I wrote my paper in 1911, and I don't think that shows I am very eager to do the operation. I never attempt it until all milder methods have failed.



Book Reviews.

Diseases of the Nose and Throat. By A. COOLIDGE, M.D. New York: W. B. Saunders Company. 1915.

This book treats in a fairly comprehensive way the subjects of rhinology and laryngology. As stated by the author in his preface, it is not intended in this small volume to give all the information which the student must occasionally seek in books of reference. At the same time

there is a surprisingly large amount of material included in a comparatively small compass.

Certain original features are worthy of special mention: In the chapter on methods of examination, the sections on examination of the trachea by the indirect method and the section on transillumination give valuable points of technic which do not appear in other textbooks. In the next chapter is brought out with emphasis the importance of the clinical history in diagnosis and treatment: a timely warning to over-enthusiastic operators who tend to attribute any and all symptoms of nasal disease to the first anatomical irregularity which they observe. The significance of the cardinal symptoms of nasal obstruction and secretion, hoarseness, cough and obstruction to breathing, is discussed. Under the latter heading is considered the significance of different types of respiratory difficulty. The subject of external fractures of the nose is treated in a particularly lucid way in respect of the mechanics of these injuries, the nature of the displacements and the method of reduction.

In the chapter on diseases of the nasal cavities, the important group of so-called vaso-motor disturbances are given their due prominence.

The author's position in reference to the recently much mooted question of the relation of the tonsils to rheumatism, endocarditis, and other remote diseases of infectious origin, is a conservative and sane one. He omits any reference to the part which the sinuses or the teeth may play as foci of infection in these diseases.

Special chapters are devoted to bronchoscopy and esophagoscopy and to disease of the mouth and tongue.

Throughout the book the more common operations are briefly but clearly described. There is a definite avoidance of that profusion of illustrations of operations and instruments which is a characteristic of many textbooks, and which betrays either an author's inability to express himself clearly in language without the aid of pictures, or his desire for an impressive display. There is no lack of illustrations when they are really of value to bring out clearly important points in anatomical or pathological descriptions. There is no padding. The language is clear and incisive. The subjects are taken up in an orderly methodical manner and with a due sense of the proper proportions.

There is a characteristic lack of dogmatic assurance in reference to therapeutic measures for many diseases, which may be disappointing to some who would take up the book in the hope of finding a definite line of treatment recommended as the right one in a given disease. But this lack is manifest only in those instances where definite lines of treatment are not of proved value. Recent advances in methods of diagnosis and treatment are not overlooked. On the whole the author has done well what he set out to do and provided an accurate, useful and interesting textbook.

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THE SYNDROME OF PERIODIC ASTHENIA.

IT is well known that many, in fact almost all, of the constitutional psychoses present a certain periodicity as one of their most characteristic traits. This is seen, for example, in periodic psychosis, manic-depressive psychosis, circular insanity, cyclothymia, and psychasthenia. But it is not so well known, or at least generally recognized, that there also exists a clinical entity characterized by period crises of physical fatigue or depression, not accompanied by mental disturbance as a fundamental aspect of the condition, and by no manner of means uncommon clinically. This condition has been properly and instructively described by Déjerine and Gauckler (*La Presse Médicale*, June 17, 1914) under the name of periodic asthenia, which they

describe as a typical and characteristic clinical syndrome.

Minor similar crises of fatigue are normal and perhaps even common in most of us; but as a rule the attacks are so slight, and of such brief duration, that they do not attract our attention in a special or pronounced manner. In some individuals, however, the crises of physical weakness or asthenia, without mental disturbance, are so marked that the slightest exertion produces decided fatigue, accompanied in most individuals by a varying, though generally pronounced, loss of sexual desire. The attacks or crises are characterized by their periodicity, their sudden appearance and as sudden disappearance, all with no apparent or ascertainable cause. Some types are very severe, with very marked general physical asthenia and incapacity, at times with changes in the pulse and arterial tension, disorder of the sebaceous glands and hair follicles, disturbed digestion, frequent attacks of migraine, in some cases loss and in others strange increase in weight, while as a rule the appetite and sleep are good.

The condition occurs as frequently in men as in women, more often in early life, in some instances after a severe attack of typhoid fever, influenza or other infectious disease.

The duration of the individual crisis is one to two days on the average, rarely above a week, although major attacks may last as long as two months or so, and in some cases may continue much longer, almost like an attack of melanochilia. The attacks recur two or three times a year or as often as every fortnight. The afflicted individual can find no cause for the condition and so attributes it to the weather or transitory joint changes.

The physician must differentiate this affection from ordinary physiological fatigue, subjective fatigue sometimes occurring in neuropaths, asthenia due to organic disease (as, for example, unrecognized tuberculosis), and asthenia due to definite ductless gland disorder, constitutional neurasthenia so frequent, especially in young persons, inherited or acquired syphilis, and the early stages of general paresis in which attacks of marked asthenia may occur in the initial stage. Not to be forgotten is the appearance of a secondary neurasthenia superimposed upon the original condition here described.

The examining physician, like the patient, can find no particular cause for the condition. But a study of the ductless gland disturbances is of aid

to us here. We know that asthenia may occur in disease of the suprarenal glands, in myxedema and exophthalmic goitre. Pituitary gland has been proved experimentally and therapeutically to stimulate muscle fibres, striated or smooth. Observation seems to show that the glands of internal secretion are so closely interrelated that functional or organic impairment of any one of the chain brings about disturbance in the activity and equilibrium of the others. Furthermore, the periodicity of the functions and disturbances of the ductless glands, especially the thyroid and ovary, is not to be lost sight of. For these reasons, Déjerine and Gauckler are led to believe that the periodic asthenias which they have described are due to a disturbance of the ductless or endocrine gland equilibrium, asthenia alone occurring, or biliary and joint disturbances appearing at the same time.

Therapeutically they declare that the attacks are inhibited or shortened by the administration of thyroid extract (dose 0.10 to 0.15 gm.) with total extract of pituitary gland (dose 0.25 to 0.50 gm.) for three or four days, the dose then being reduced (to 0.05 and 0.02 gm. of thyroid, and 0.10 gm. of pituitary). Complete rest during the period of the crisis, and careful general hygiene in the intervals between the attacks, are indicated.

This syndrome will be at once recognized by every practising physician, for such cases have puzzled us long, and too many of us have permitted ourselves to label the afflicted patient neurasthenic. Whether or not the cause and treatment advocated by Déjerine and Gauckler be found to explain this distressing disorder, the logic certainly is sound, and the authors mentioned have very likely given us the correct solution to this clinical puzzle.

these climes. And, indeed, the barring of immigrants suffering from this condition has awakened not only foreign governments to the menaces of this disease, and the taking of measures against it, but the number of immigrants with active disease attempting immigration has fallen to a negligible quantity. On the other hand, because of the treatment received by individuals who desired to emigrate, and who would not otherwise have treated themselves or known of the presence or nature of their disease, the number of cured or completely scarred cases is increasing, until it is now almost a rarity to see an active uncured case of trachoma.

Recently, however, investigations carried out by the Public Health Service of a form of ophthalmia found to be very prevalent among the inhabitants of the mountainous countries of West Virginia and Kentucky revealed the fact that this ophthalmia and the resulting high percentage of blindness was trachomatous, and in nature in no wise different from that previously very heavily imported by immigrants. In some districts the prevalence of this disease was almost universal. If for any reason, or because of the mildness of the few cases found among arriving immigrants, the contagiousness of this disease was questioned, it was again forcibly demonstrated here as it had been when the disease was first introduced into Europe by Napoleon's soldiers from Egypt, under the form of "Egyptian ophthalmia." Indeed, some American observers have evinced a decided leaning towards the notion that this disease was of a non-specific and non-contagious character, and that the overgrowth of the lymphatic tissues of the conjunctiva in trachoma, and the absence of trachomatous disease in the very young in whom this lymphatic tissue is not yet developed, proved that the condition was a mere hypertrophy, of the same kind found in adenoid hypertrophy. It is true that thus far all attempts to locate a specific germ or other specific causative factor have proved fruitless, but then that is true of many diseases about whose contagiousness there is no doubt. To various bacteria found in the discharges have been ascribed the causation of this disease, but thus far none of them has fulfilled the Koch postulate necessitating the isolation, the cultivation in pure culture, the reinfection with the bacteria and the recovery of the specific bacterium. The significance of the often found negri-like bodies, the so-called "trachom bodies," has not been determined.

TRACHOMA AMONG NATIVE POPULATION.

SINCE the pointing out by Massachusetts medical men of the prevalence and the dangers of trachoma to the native population through the importation of this disease by immigrants, it was believed the disease was of foreign origin, and that when this source of infection was eradicated the disease would be at an end in

Moreover, in these mountain cases whole families were found infected, and the stage of the disease varied only with the age of the individual—that is, the age of the disease. In one family every stage of the disease could be found. The sanitary conditions and the mode of living fully warranted the spread of this disease among them, especially during the winter, when a whole family would be huddled up in one cabin, using the same towel, the same basin, and even the same water.

The trachoma in this native stock could not be traced to present immigrant importation, and the cause must be found among them or be traced further back. This is likewise true of the American Indians, in whom trachoma is so very common,—that the disease may have been introduced among them years ago by foreign settlers.

The communities where this disease was found so prevalent are now, however, alive to the gravity of the situation and are in the course of establishing clinics and constructing hospitals for treating those afflicted. It is to be hoped that the completion of these facilities and the education of the inhabitants in prophylactic measures will eradicate the disease among them, will be another victory in the conservation of vision, and, above all, will be a victory for preventive medicine.

but particularly the cretenoids and the myxedematous. A poor drinking water has been blamed for this condition, but withal not an unsanitary one, for improvements in this regard have failed to affect the conditions. Certain inorganic salts have been believed to be at the bottom of the trouble, but the latest theory is that the poisonous substances, whatever they are, are derived from old marine bodies. However, boiling the water to 80° C. seems to destroy the substances and prevent the development of the conditions. On the other hand, even filtration through a Berkfield filter will have no effect to prevent the condition.

While nothing so definite either as to cause or as to treatment is known about the other gland disorders or diseases, it is yet quite definitely established that removal of the ovaries or testicles, or as to the latter in congenital eunuchoidism, causes a peculiar mentality, characterized often, as in the myxedematos, by a certain slowness of cerebration, apathy, backwardness, peculiar mental and moral characteristics and the like. This is the accompanying mental condition in acromegaly from pituitary disease and in Addison's disease from disease of the adrenals.

It is suggested that if such gross lesions as are found in the conditions just mentioned produce such marked mental symptoms, there may be minor lesions which produce the minor mental conditions, as exemplified by the feeble-minded or the moron. In these instances, for example, the organic lesion, say in the thyroid, is so slight as to be unrecognized with the present methods of diagnosis. Indeed, there have been reported some very good results in the treatment of feeble-mindedness, as well as insanity, with thyroid extract. In all probability, however, at least in so far as the mental conditions are concerned, not one gland alone is at fault. All the glands act in unison, as does every other organization of the system, and the fault may lie simply in a disturbance of the gland reciprocity or association. There need not be destruction or arrest of growth or development, but it may be a disturbance in blood supply, in nervous control, or in the chemical composition of the secretion. But of whatever nature, disturbance of the secretory function causes a destruction and chromatolysis of the nerve cells, and to the extent of the destruction and of the chromatolysis there may be disturbance or deficiency of mental function.

THE RÔLE OF INTERNAL SECRETION IN MENTAL CONDITIONS.

SINCE the discovery of the significance of the so-called glands of internal secretion—the thyroid, pituitary and adrenal glands—and of the glands of both internal and external secretion—the ovaries and the testicles—there has been an increase in knowledge of their connections with general metabolism as well as with the functions of the mental and nervous systems. In this respect, perhaps the best known and the most studied, as well as the most amenable to influence, has been the thyroid gland. Here the mental symptoms in secretory deprivation have been particularly marked. They range from the absolute cretinoid idiot to the mildly defective. In certain of the so-called goitrous districts there have been a remarkable number of thyroid affections,

IMPORTANCE OF EARLY USE OF DIPHTHERIA ANTITOXIN.

THE Boston Health Department desires again to call the attention of the medical profession to the great importance and necessity of the early use of antitoxin in all suspected cases of diphtheria. Many deaths from this disease that have been investigated recently show that physicians have depended on the laboratory findings for the diagnosis of this disease rather than on the clinical evidence that has been presented to them.

Antitoxin has been withheld from many cases for so long a period,—viz: sometimes for four or five days,—that death has intervened without the use of antitoxin. Any case that is suspicious enough to warrant the aid of cultural diagnosis should receive at the same time antitoxin treatment. The Health Department is anxious to co-operate with the medical profession in these cases, and will be glad to visit all suspected cases of diphtheria and to furnish aid in diagnosis and, if necessary, administer the antitoxin treatment. Antitoxin has reduced the great mortality of former years from this disease, but during the past few years the deaths from this disease have increased in this city. Many of the deaths from this disease, after investigation, have demonstrated that children have died in some cases without a physician being called, and in others that the administration of antitoxin has been delayed so long that it has been without avail for the cure of the disease.

A case recently investigated, within the past few days, gives a history of a physician being called, case suspicious, and a culture made. Laboratory reported negative. Culture taken the following day was reported to the physician as suspicious and request made for another culture. On the third day another culture was taken, and before a report could be made the child died. This case is but one of many that have recently come to the attention of the department. Early treatment can reduce the mortality of this disease to almost a minimum, and many lives can be saved. However, to achieve this result the Health Department must have the co-operation of the profession. It is earnestly to be desired and expected that such co-operation shall be manifested, since, with the means for absolute control of diphtheria in our possession, it is the responsibility of practising physicians and of the educated public if that control is not effectively applied.

TUBERCULOSIS DISPENSARIES.

In the monthly bulletin of the Massachusetts Department of Health for October, 1915, is published the paper on tuberculosis dispensaries, read before the recent New England Tuberculosis Conference at Springfield, by Dr. Eugene R. Kelley, director of the division of communicable diseases in the department. In this paper, Dr. Kelley considers successively the measures available in the struggle against tuberculosis, the place of the tuberculosis dispensary in this work, and the essentials of an efficient tuberculosis dispensary. His consideration is based on the application of the Massachusetts dispensary law, whose enforcement has already shown encouraging results. Since July first of this year the tuberculosis dispensaries of the state report a total of 2778 individuals who have had first examinations. Of this total, 27% are examinations made by dispensaries that were non-existent before July. Thirty-two per cent. of the cases are reported from the dispensaries in Boston and the remainder by those elsewhere in the state. Notwithstanding these promising figures, the dispensary system has already shown certain shortcomings, chief of which is a failure of adequate grasp upon the tuberculosis problem and its relation to other phases of public health. Another deficiency is the lack of special training and experience on the part of nurses undertaking this work. Dr. Kelley comments finally on the future problems and possibilities of the tuberculosis dispensary system, which, in spite of its defects, he believes an important factor in the control of tuberculosis. There are, at present, 54 cities and towns in Massachusetts which maintain a tuberculosis dispensary service, and these represent approximately 80% of the population of the state. Complete extension of this system to cover the entire Commonwealth, together with the improvements suggested as a result of its early experience, should make the tuberculosis dispensary system a valuable part of the local struggle against tuberculosis in Massachusetts.

MEDICAL NOTES.

SCARCITY OF MEDICAL SUPPLIES IN CHINA.—It is reported from Pekin that the scarcity of medical supplies in China makes it desirable that

there should be established at Shanghai an American firm to supply American hospitals and medical schools in China with the necessary drugs and materials.

"It would seem that the hospitals and medical schools in China experience much difficulty in securing supplies of gauze, cotton of different fibres (sterilizing done in China), suture material, drugs and chemicals in bulk, and surgical instruments. It is recommended that an establishment be opened in Shanghai capable of combining the carrying of stocks of drugs and chemicals with surgical instruments and appliances. There will be a growing demand for these materials in China, especially since the inauguration of the work of the Rockefeller Foundation Commission toward encouraging medical education in this country. The work of this commission will result in securing for certain medical schools and hospitals already in the field a better and more complete equipment and facilities for more extensive work, all of which will involve the creation of a greater market for American drugs, chemicals, surgical instruments and appliances. It is also desirable that the suggested establishment make provision for repairing and nickel-plating surgical instruments, as there is a large and increasing demand for this line of work. The opportunity now presents itself for manufacturers of the United States to see that this general supply house is America."

THE WEEK'S DEATH RATE IN NEW YORK.—According to Registrar Guilfoy of the Department of Health, 66 lives were saved last week, for had the death rate of the corresponding week of last year prevailed during the past week, 66 more persons would have died. The greatest saving of life was recorded under heart disease, 44 fewer persons dying from this cause during the week just closed than during the week ending November 7, 1914. Noteworthy decreases are also to be noted under deaths from pulmonary tuberculosis and other forms of tuberculosis, digestive diseases and diseases of the nervous system. Both lobar and bronchial pneumonia showed a material increase last week over the corresponding week of last year. Five more deaths were reported from typhoid fever than during the corresponding week of 1914. The total deaths for the week were 1220, with the rate of 10.96 per 1000 of population, as compared with 1236 deaths and a rate of 11.55 for the week ending November 7, 1914. The death rate for the first 45 weeks of 1915 is .40 per 1000 of population lower than the corresponding period of 1914, the rates being respectively 13.13 and 13.53.

PREVALENCE OF MALARIA, MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service of November 5, states that

during the month of September, 1915, there were in Mississippi, 32,532 cases of malaria, 1031 of pellagra, 258 of smallpox and 849 of typhoid fever. During the same period there were in New York State 21 cases of cerebro-spinal meningitis, 49 of poliomyelitis and 833 of typhoid. In Kansas there were 58 cases of smallpox and 229 of typhoid. There were 278 cases of typhoid fever in Indiana.

SOUTHERN MEDICAL ASSOCIATION.—The annual meeting of the Southern Medical Association was held at Dallas, Texas, on November 9, 10, and 11. The principal address was delivered by Dr. Rupert Blue, surgeon-general of the United States Public Health Service, on "Sanitary Preparedness." Dr. Blue emphasized particularly the relation of such preparedness to eugenics.

"The first step in the creation of sanitary preparedness is to teach the citizen the value of a sound body. If, upon the plastic mind of the school child the simple truths of sanitation are impressed, we will gradually create a people in which sanitary living is a habit. If by child hygiene we produce better and stronger men and women, these in turn will have learned that mating with the weak and defective produces weak and defective children. Thus we will have a practical eugenic betterment."

Other addresses were given by Dr. W. L. Rodman, president of the American Medical Association, Dr. Isador Dyer of New Orleans, Dr. Lloyd Thompson of Hot Springs, Ark., Dr. P. N. Whitfield of Florence, Miss., Dr. John L. Davis of Waco, Texas, and Dr. J. Ross Snyder of Birmingham, Ala. Dr. Thompson advocated the legal requirement of a Wassermann test prior to the issuance of any marriage license. As a matter of fact it might seem that the requirement of a Schwartz test would be likely to prevent a larger amount of marital disaster and infelicity.

UNIVERSITY OF PITTSBURG.—At the recent dedication of the Elizabeth Steel Magee Hospital in Pittsburgh, Pa., the University of Pittsburgh conferred the honorary degree of LL.D. on Dr. John W. Williams of Johns Hopkins University, on Dr. Barton Cooke Hirst of the University of Pennsylvania and on Dr. Walter William Chipman of McGill University.

NATIONAL ASSOCIATION FOR THE STUDY OF PELLAGRA.—The third triennial conference of the National Association for the Study of Pellagra was held on October 21 and 22, at Columbia, S. C. At the closing session of the meeting the following officers of the Association were elected for the ensuing year: President, Capt. Joseph F. Siler, M.C., U. S. Army; vice presidents, P. A. Surg. R. M. Grimm, U. S. P. H. S., and Henry W. Rice, Columbia, S. C.; secretary, Dr. James W. Babcock, Columbia, S. C., and treasurer, Dr. James A. Hayne, Columbia, S. C.

UNITED STATES FIRST AID COMMISSION.—In the issue of the JOURNAL for October 28, we commented editorially on the American First Aid Conference held in Washington, D. C., on August 23, and 24, 1915, and on the recommendations and resolutions adopted by that Conference. In accordance with the resolution recommending the appointment of a board on first aid standardization, President Wilson announced on November 9, the appointment of such a commission, whose membership represents seven technical medical and relief organizations. The personnel of this commission is as follows:

Maj. Robert U. Patterson, representing the army and the Red Cross; Surgeon A. M. Fauntleroy, representing the navy; Assistant-Surgeon-General W. C. Rueker; Dr. A. Shelton Horsley of Richmond, Va., representing the American Medical Association; Dr. S. C. Plummer of Chicago, representing the American Association of Railway Surgeons, and Dr. Richard A. Harte of Philadelphia, representing the American Surgical Association. It is believed that the President will later appoint another member so that the army and the Red Cross will each have a representative.

This commission will investigate first aid methods, packages, the standardization of first aid equipment and an identical course of instruction to be followed throughout the country and will report on these subjects to the American First Aid Conference. The president of this conference is Dr. W. C. Gorgas, surgeon-general of the United States Army, and the vice president, Dr. Rupert Blue, surgeon-general of the United States Public Health Service.

LONDON DEATH RATES IN SEPTEMBER.—Statistics recently published show that the total death rate of London for September, 1915, was only 14 per thousand inhabitants living. Among the several districts and burroughs the lowest death rate was 9.4 in Lewisham, a southern suburb, and the highest was 19.9 in Greenwich. This exceptionally high rate in a district which usually has one of the lowest death rates, apparently represents the loss of life from recent Zeppelin air raids.

EUROPEAN WAR NOTES.

CHOLERA IN GERMANY.—During the week ended October 9, 1915, there were in Germany, five cases of Asiatic cholera with one death among the civilian population. A few other cases were reported among prisoners of war.

TRANSFER OF THE WOUNDED ON THE BATTLE-FRONT.—A report from a station for the transfer of wounded somewhere in France states that an average of a thousand wounded men have been sent each week into the interior of France for prolonged care. The station has but a single track for the hospital train but the transfer has

been very regular even with a peak load of 1300 patients, 800 of them unable to walk. Every night the beds were full and every noon they were empty. For this station there had been detailed only four physicians and twenty-three aids, but a reserve force was hurried to the spot. At a second centre five consecutive days showed a total of 13,800 wounded, the maximum day being 5520 men.

APPEAL FOR WAR FUNDS.—Report from New York on November 10, states that Mrs. Robert Bacon of that city, chairman of the American committee organized to raise funds for the maintenance of the American Ambulance Hospital at Neuilly, France, has issued an appeal for subscriptions to a fund of \$200,000, which will be needed to keep the hospital in operation for another year. The hospital is at present filled to its capacity of 1000 cases and its motor ambulance service is transporting wounded soldiers from the front to various hospitals to the number of about 10,000 each month. The statement issued by Mrs. Bacon descriptive of the work of the hospital and of its needs is in part as follows:

"Since the service was started it has grown because of the demands made upon it, until we have now three hospitals and about 160 cars in the ambulance section. The base hospital at Neuilly, a suburb of Paris, has now about 600 patients, all serious cases, and the advanced hospitals at Juilly which is maintained by Mrs. Harry Payne Whitney, has more than 200 patients. The third hospital is the portable field tent hospital which consists of thirty-three tents and which was purchased from the Department of War of this country. This is stationed at the front and accommodates more than 100.

"The hospital is in great need of money. It costs about \$1000 a day to maintain the entire service, and we feel quite confident that Americans who have made this work possible will not allow it to suffer from lack of funds."

A further report from New York on November 13, announced the need of contributions to the American War Relief Clearing House for the care of French wounded soldiers during convalescence.

"There are at present in France 170 depots for éclopés containing at the present moment 150,000 men, and as the cold weather increases the number will become greater. Some of these men are slightly wounded and some ill, but a great majority of them are those whose nerves have been shattered by the trench warfare. They all must be cared for, and need, in addition to absolute necessities, games for both indoor and outdoor diversion.

"For assistance in caring for these éclopés the American Relief Clearing House of Paris has asked for contributions of the following articles: Letter paper and envelopes, lead pencils, needles, buttons, thread, toilet paper, ponchos,

heavy canvas, bed-ticking, sheets, woolen yarn, clothing, blankets, soap in both small and large cakes (should have 6000 pounds per month).

"Contributions of games, such as backgammon, checkers, dominoes, basketballs, footballs, etc., (playing cards cannot be accepted), will do great good in occupying the hands and minds of these sufferers. Cash contributions for emergency relief should be sent to the War Relief Clearing House for France and Her Allies, 15 Broad street, New York city.

"Contributions of material, clothing, bedding, food, games and other supplies should be forwarded prepaid to the warehouse of the War Relief Clearing House, 150 Bank street, New York city, and will be transported from New York to destination in France without expense to contributors."

ST. GEORGE'S FUND.—On November 13, the amount of contributions in Massachusetts to the St. George's fund for the relief of the families of British soldiers and sailors reached a total of \$12,085.54. The principal amounts contributed to this fund in other states are as follows:

New York	\$6066.32
Pennsylvania	5975.53
Connecticut	4289.00
Pacific Coast	4075.68
New Jersey	4062.26
Illinois	3139.89
Michigan	1933.50
Ohio	1467.77
Rhode Island	1272.35

The grand total of the entire fund now amounts to \$47,328.75.

WAR RELIEF FUNDS.—On Nov. 20 the total of the principal New England relief funds for the European War reached the following amounts:

Jewish Fund	\$199,000.00
American Ambulance	69,296.00
Polish Fund	55,446.11
Allied Fund	33,881.30
French Fund	24,048.79
German Fund	16,500.00
LaFayette Fund	12,087.99
Italian Fund	11,835.69
Armenian Fund	10,847.00
Surgical Dressings	9,036.50

BOSTON AND NEW ENGLAND.

THE WEEK'S DEATH RATE IN BOSTON.—During the week ending November 20 there were 203 deaths reported, with a rate of 14.54 per 1000 of population, as compared with 204 and a rate of 14.78 for the corresponding week of last year.

Deaths from pulmonary tuberculosis numbered 16 for the week. An analysis of a group

of recent deaths from tuberculosis gave 18 months as the average duration of illness, though the average length of life after they were reported to the Health Department was only 2 months. This is certainly an indication that some cases are not reported as soon as the diagnosis is made.

There were 40 deaths under 1 year as compared with 35 last year, and 63 deaths over 60 years, against 51 last year.

Total deaths reported in 46 weeks from January 2 to November 20 were 10,411 against 10,423 for the corresponding period last year. Deaths under one year reported in the same period were 1782 against 1775 for the corresponding period last year.

HOSPITAL BEQUEST.—The will of the late Mary T. Gorham of Boston, who died on Oct. 29, contains a bequest of \$2000 to the Cottage Hospital at Exeter, N. H.

BOYLSTON MEDICAL PRIZES.—These prizes, which are open to public competition, are offered for the best dissertation on questions in medical science proposed by the Boylston Medical Committee. They were established in 1804 and are of considerable interest in Harvard University.

At the annual meeting held in Boston in 1913, no prize was awarded.

For 1915, there is offered a prize of three hundred dollars and the Boylston Prize Medal, for the best dissertation on the results of original research in medicine, the subject to be chosen by the writer. Dissertations entered for this prize must be in the hands of the secretary, H. C. Ernst, M.D., Harvard Medical School, Boston, Mass., on or before December 31, 1915.

In awarding these prizes, preference will be given to dissertations which exhibit original work, but if no dissertation is considered worthy of a prize, the award may be withheld. Each dissertation must bear, in place of the author's name, some sentence or device, and must be accompanied by a sealed packet, bearing the same sentence or device, and containing within the author's name and residence. Any clew by which the authorship of a dissertation is made known to the Committee will debar such dissertation from competition. Dissertation must be printed or typewritten, and their pages must be bound in book form. All unsuccessful dissertations are deposited with the secretary, from whom they may be obtained, with the sealed packet unopened, if called for within one year after they have been received.

By order adopted in 1826, the secretary was directed to publish annually the following votes:

1. That the Board does not consider itself as approving the doctrines contained in any of the dissertations to which premiums may be adjudged.

2. That, in case of publication of a successful dissertation, the author be considered as

bound to print the above vote in connection therewith.

The Boylston Medical Committee is appointed by the President and Fellows of Harvard College, and consists of the following physicians: William F. Whitney, M.D., chairman; H. C. Ernst, M.D., secretary; Theobald Smith, M.D.; William T. Porter, M.D.; Henry A. Christian, M.D.; Edward H. Nichols, M.D.; John Warren, M.D.

The address of the secretary of the Boylston Medical Committee is Harold C. Ernst, M.D., Harvard Medical School, Boston, Mass.

BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.—The annual meeting of this Association will be held at the Twentieth Century Club, Monday, November 29, at 4 p.m. Following the annual reports of the treasurer and secretary, there will be an address by Miss Ella Phillips Crandall, executive secretary, National Public Health Nurses' Association, New York City, whose subject will be "The Tuberculosis Nurse as a Modern Health Agent." She will be followed by Miss Eunice H. Dyke, superintendent of Public Health Nurses, Toronto, Canada. This meeting will be open to the public and should be of interest to physicians and nurses, as well as to tuberculosis workers.

PERSONNEL OF THIRD HARVARD SURGICAL UNIT.—In addition to the members of the third Harvard Surgical Unit, whose names were published in last week's issue of the JOURNAL, the personnel of this unit will contain Dr. William R. Porter of Boston and Dr. C. Franklin MacDonald, a young practising dentist of Brooklyn, N. Y.

APPOINTMENT OF BOSTON SCHOOL PHYSICIANS.—At the meeting of the Boston school committee on November 15, the following board of forty-one school physicians was appointed to replace the former board of eighty members. These appointees will begin their service on November 22 and each will receive an annual salary of \$504, with the exception of one, detailed to the school employment bureau, who will receive \$900. This board will be under the direction of Dr. William H. Devine, who will also have charge of the school nurses. The following is a list of the appointees, who will constitute the personnel of the new board of Boston school physicians:

Dr. Francis G. Barnum, Dr. Joseph A. Cogan, Dr. Simon F. Curran, Dr. Carlisle Reed, Dr. Charles E. Shay, Dr. Frederick W. Stetson, Dr. Edward F. Timmins, Dr. James A. Reilly, Dr. Edward J. O'Brien, Dr. Martin J. English, Dr. Russell F. Sheldon, Dr. William F. Temple, Jr., Dr. Roland W. Brayton, Dr. Joseph B. Lyons, Dr. Bernard W. Pond, Dr. Theodore C. Erb, Dr. George E. Winslow, Dr. David E. Hanlon, Dr. Charles F. Stack, Dr. Irving Sobotky, Dr. John H. Moore, Dr. Phillip E. A. Sheridan,

Dr. Solomon H. Rubin, Dr. Ernest L. Booth, Dr. Harry Olin, Dr. Morris Frank, Dr. Bradford Kent, Dr. James E. Blake, Dr. Edward A. Tracy, Dr. Arnold N. Allen, Dr. Mitchell Sisson, Dr. Joseph H. H. Kelley, Dr. David P. Hayes, Dr. Harry Fein, Dr. William H. Robinson, Dr. Mary T. V. Moore, Dr. Joseph E. Hallisey, Dr. William J. Brown, Dr. Francis J. Doherty, Dr. F. P. Silva, Dr. John T. Sullivan.

Obituary.

GEORGE MILLER STERNBERG, M.D.

DR. GEORGE MILLER STERNBERG, U.S.A., a retired surgeon-general of the army, distinguished both in medical and in military circles, died at his home in Washington, D.C., on November 3, 1915. Dr. Sternberg was born on June 8, 1838, in Oswego County, N. Y., and after obtaining his preparatory education at the Hartwick Seminary, he taught school for three years at Germantown, N. J. In 1857 he began the study of medicine in a physician's office and subsequently attended the College of Physicians and Surgeons in New York, from which he received the degree of M.D. in 1860.

At the outbreak of the Civil War, Dr. Sternberg took the examination for the army medical corps. On May 28, 1861, he was appointed assistant surgeon and was assigned to duty with the third regiment of United States Infantry. He served with this command throughout the war and was successively promoted to be captain and major for faithful and meritorious conduct. At the close of the war he continued in the army medical service and on July 12, 1867, was made lieutenant-colonel for gallant service in the performance of his professional duty in action against the Indians at Clear Water, Idaho. During the next three years he served in various Indian campaigns. In 1871 he was in charge at Fort Columbus in New York Harbor during the yellow fever epidemic of that year and in 1873 and 1875 served in Florida in a similar capacity. During the Spanish War Dr. Sternberg, as surgeon-general of the United States Army, established military hospitals at Key West, and at Fort Thomas, Fort MacPherson, Fort Myer and at San Francisco, and upon his recommendation, two hospital ships were purchased and equipped. The establishment of the Army Medical School at Washington stands also to his credit and is, perhaps, the best known and most important of the services associated with his name. Dr. Sternberg was surgeon-general from 1892 to 1902, and upon his retirement in the latter year was given the rank of brigadier-general.

Miscellany.

HEALTH OF THE UNITED STATES NAVY.

THE annual report of the Surgeon-General of the United States Navy, Dr. Braisted, issued in Washington on November 6, emphasizes on the one hand the increase of tuberculosis and other pulmonary diseases among sailors and, on the other hand, the notable decrease in the incidence of typhoid fever. During the year under consideration, there were in the United States Navy 38 deaths from tuberculosis and 33 from pneumonia. The reason for this exceptional incidence of pulmonary disease is attributed "to the crowded condition necessary to manning and equipping vessels of war, in which hygienic primal principles, such as are accepted as indispensable in life on shore, practically never achieve recognition."

"Overcrowding, extreme reduction of the amount of air space per person, improper proportion of moisture and the inappropriate placing of air inlets and exits, over- or under-heating of the air,—these are all faults and problems incident to the packing of 1000 men in quarters which theoretically should hold but 300."

With typhoid fever, however, the situation is the reverse, since the adoption of compulsory anti-typhoid inoculation. Three years ago there were in the Navy, 222 cases of typhoid fever with fifteen deaths; last year there were only 15 cases and no deaths. Dr. Braisted believes that this practical elimination of typhoid fever from the navy is due almost entirely to prophylactic inoculation.

"While the reduction in morbidity has been coincident with a marked improvement along the same lines in the civil population of the larger cities of the United States, which cannot be ascribed to immunizing methods, the improvement in our service has far outpaced that ashore. Undoubtedly the country-wide education regarding sanitary principles, as disposal of waste, improvement of water supply, more extensive pasteurization of milk, anti-fly campaigns, etc., have been most potent in producing the results, shown in tables, taken from the *Journal of the American Medical Association*.

"Reports from the armies of the contending nations now in the field show remarkable improvement. The Germans, who had provided extensive hospital accommodations for expected or possible incidence of typhoid, measured by standards of previous conflicts, have been able to convert these facilities to other uses owing to the comparatively slight incidence of what was once the worst scourge of a military campaign. In the British Expeditionary Force in France during the first ten months of the war the ratio of morbidity was 14 times, and of mortality

forty-two times greater among the uninoculated than among the inoculated. (*British Medical Journal*.) The sanitary condition of the French Army is particularly satisfactory. No epidemics have appeared, thanks to the knowledge and strict application of the fixed laws of hygiene. If a few isolated cases of typhoid fever appear, it is because those who are attacked have not been protected by vaccination, or have been vaccinated in an unsatisfactory manner as to quantity or method of application. In the early months of the war, moreover, since preventive vaccination had not yet been made general, and numerous cases were presenting themselves in the infectious hospitals, it was thought that cases of typhoid fever had been found in those who had been vaccinated. This was not so. These cases have been found to be paratyphoid. (*Lancet*, London, Aug. 7, 1915.)"

In conclusion the report recommends the provision of two new hospital ships in addition to the *Solace*, the only hospital ship now in the Navy. It further recommends that arrangements be made for the purchase of additional merchant craft for use as ambulance ships or medical transports in time of war.

MILITARY MEDICINE IN THE SEVENTEENTH CENTURY.

In the issue of the *Lancet* for October 16, 1915, appears an editorial comment on two seventeenth century books of military medicine and surgery which have recently been acquired by the library of the Royal Society of Medicine. Both these works were printed in London by William Goddard and were "sold by one Moses Pitt at the Angel over against the little north door of St. Paul's Church." The first book is entitled "Cista Militaris or a Military Chest," being a description of "Dr. Lower's lancet for the more safe bleeding with an illustration thereof."

"The chest was based on the 'Military Chest of the most Illustris Heroe, Maurice, Prince of Orange, wherein not only Medicines and Instruments, but also Linnen, Rowlers, and other Necessaries were prepared.' Of the medicines, a supply was to be kept of Purging Simples, Purgating Compounds, Electuaries and Powders Strengthening the Heart and noble parts, Aromaticks, Distill'd Waters and the like, Syrup, Roots, Herbs, Flowers, Seeds, Fruits, Oyl, Unguent, Fats, Plaisters, Guns, Minerals and Meals. The Chirurgeon is also to be furnished with necessary Instruments some to be fitted for a Box to carry about him in his Poeket; these ought to be made small and little, that they may neither load him, nor affright the Patient. Among these figure Trepans, Levatories, Sealpræ's, Instruments to draw forth Bullets from Gunshot Wounds, and a great Saw for amputating Great Members. We learn further that a Chirurgeon

ought to be provided with splints of several big-besses, made of thin pieces of wood. Finally, Lint to keep the lips of the Wounds asunder, that they unite not again. And to conclude: Candid Reader, be sure that it be so provided with mendicaments and Instruments, that out of it, when occasion requires, thou mayst be able to assist and relieve the Sick; for what thou art employed about here, is neither Beast, nor Precious Stones, but Man for whom the Son of God shed his pretios blood upon the Cross.

The second book is entitled 'A Body of Military Medicines Experimented by Raymundus Mindererus, late Chief Physitian of the Electoral Court of Bavaria, and Englished out of High Dutch.' It begins with the Morals of a Souldier, who ought to serve his Prince faithfully to the best of his skill and power, to obey his Officers readily, and to do to all others, as he would be done to, if he were in their condition. Then is given advice regarding the care of his Body as follows:—To free thyself from Vermin, take a good quantity of Wormwood, and the inner cuttings of horse-hoofs; boyl these both together in half lye and half water, and so put thy shirt into it, and afterwards dry it in the Air, without washing it out any other way, and not a lowse will come into it. If thou canst not have Spring water, let some drops of Oyl of Vitriol fall into it, and you need not then fear any corruption or poysion in such water. Otherwise if time will permit, let it boil up and cool again, and you may drink of it safely. Concerning the Arny Medical Staff we learn:—These ought to be no Youngsters, that are lately come from Schools and Universities, but such as are expert in the Cure of Diseases. The Physitians and Chirurgions are to be intimate friends together, assisting one another without envy and pride, for the better relief of their Patients. 'Tis very necessary, both these should go abroad and travel before they undertake to practise, thereby to learn to converse with the more discretion and gentleness with all sorts of humors. In therapeutics the work is both informing and dogmatice:—To avoid fevers, keep thy body clean every way; be cheerful; never fasting, nor never full. To heal injuries, keep the wound clean, and let no many look into it, for fear they should by their breath annoy it. You may also recover frozen Feet with white rotten Turnips, beaten with Butter or Tallow, and so clapt on. If you have a strong breath, take now and then three or four Aloes-pills."

SEIZURE OF SUBSTITUTE SPECIFICS.

THE United States Department of Agriculture has recently issued the following statement relative to its seizure of certain cheap imitations of well-known preparations which have recently been put on the market during the

shortage of certain drugs on account of the European War. Reference to these fraudulent drug substitutes was made in a recent issue of the JOURNAL.

"Several shipments of worthless imitation drug products have been seized by the officials in charge of the enforcement of the Food and Drugs Act. Itinerant peddlers are selling to drug stores large quantities of preparations made up and labeled in imitation of high-priced patent medicines of foreign origin. Only small quantities of the genuine medicines have been imported since the war began, causing a great increase in prices. Unscrupulous manufacturers are attempting to reap a harvest by substituting for the genuine medicines cheap chemicals with no medicinal value whatever. In order to make it difficult to trace these preparations to the parties responsible for their manufacture, they are not usually distributed through the regular channels of commerce, but are peddled about to drug stores by itinerants, who make immediate delivery at the time of sale.

"A preparation put up in imitation of 'Neosalvarsan,' a medicine which has largely displaced the preparation known as 606 in the treatment of syphilis, is being distributed to drug stores in this manner. A sample labeled 'Neosalvarsan,' which was recently examined by the Department, was found to be nothing more than salt colored with a coal tar dye, none of the genuine neosalvarsan whatever being present. The label on this product was an exact reproduction of the genuine imported neosalvarsan, or it was an original container refilled with the imitation article.

"This fraud is held to be particularly flagrant, according to the medical experts of the Department, not alone because a worthless preparation is sold for a high price, but mainly because neosalvarsan is usually administered by injection directly into the blood of the syphilitic patient. The cheap substitute is not only worthless in the treatment of this disease, but when injected directly into the blood might work considerable injury.

"Other preparations which are peddled to druggists and purport to be acetylsalicylic acid, commonly known as aspirin, a medicine of foreign origin regularly prescribed by many physicians for certain ailments, have been seized by the officials in charge of the enforcement of the Foods and Drugs Act, because an analysis showed that the products were worthless imitations.

"Owing to the manner in which these preparations are peddled about, it is difficult to trace the interstate shipment of any of them, and in cases where there has been no interstate shipment the Federal Food and Drugs Act has no jurisdiction. On information furnished by the Federal authorities some of these imitation goods have been seized by city officials who had authority under state laws to proceed when there had been no interstate shipment."

Correspondence.

MEDICAL EXPERIENCES OF A RHODES' SCHOLAR IN THE EUROPEAN WAR.

(From Our Special Correspondent.)

DEPARTMENT OF PATHOLOGY.

UNIVERSITY OF OXFORD, Oct. 26, 1915.

Mr. Editor: During the course of this war, I have had opportunities of seeing and of working in some of the war hospitals in England, France and Serbia, as well as in Germany. In Serbia where I worked during the typhus epidemic, hospitals consisted of schools, barracks, factories or any buildings that happened to be larger than the ordinary small Serbian mud cottages. The equipment was most primitive. Beds were simple sacks of straw upon the floor. If the hospital was not overcrowded each patient had a sack to himself, but during the height of the epidemic two of these rude mattresses had to be placed together, to be shared by three men. The bed clothing in a good hospital consisted merely of a blanket, but in ordinary places a patient was compelled to keep warm as best he could, with the remnants of his uniform and overcoat. Food, consisting of soup and bread, was usually sent to the different hospitals in each town, from one central kitchen, and at meal times you would see pairs of Austrian orderlies, for the prisoners did all of the rough work, marching through the market place with a huge cauldron of soup suspended from a pole on their shoulders. For medical treatment they were reduced to more or less futile attempts at cleanliness and fresh air, the former being difficult because of the vermin, and the latter was opposed by the Serbs on general principles. In fact the only way windows could be kept open while one's back was turned, was to break the glass. As a rule, drugs were reduced to aspirin to treat the headaches which are so terrific in typhus. Very little beyond this could be done because of the lack of supplies. The routine on admitting a patient was to remove his clothing to be sterilized if possible, to give him a bath, to clip his hair and if any ether was available, to scrub his head with it, for if this precaution was not taken, your patient would be literally alive with lice again within a few days, for the eggs remaining in the roots of his hair would have hatched.

The real need of Serbia during the epidemic, however, was not hospitals to care for the victims, after typhus had already set in, but sanitary organization to prevent and limit the spread of the disease. The overcrowding of the center of the country by refugees from the northern districts, invaded by the Austrians, had produced such filth and bad living conditions that the typhus had every opportunity to increase and flourish. This sanitary organization has now been easily accomplished by the American Red Cross Sanitary Commission in spite of the great difficulties caused by the ignorance of the general population. But now that Serbia is suffering from a second invasion that is many times worse than the early one, and the population is fleeing in hordes toward the Montenegrin frontier and overcrowding the villages in that region, it is difficult to imagine what will prevent a repetition of last winter's scourge.

From Serbia I went to Italy with Sir Thomas Lipton, who was using his yacht *Eria* for Red Cross transportation, and from Italy I reached England by crossing Austria, Germany and Holland. Although the towns in Austria which I visited were filled with wounded, yet it was not until I reached Germany that I had opportunities of going through war hospitals. The first one that I visited was the German-American hospital in Munich. The contrast of their equipment and efficiency with the poverty and incompleteness of Serbian hospitals was amazing to

say the least. Everything was completely organized and systematized. When the head surgeon made his rounds every man who could move, even an unfortunate man with one leg, came to attention at the foot of his bed. This strict discipline in the hospitals was very noticeable, and the fact that cures seemed to require less time there, than in English or French hospitals where patients are allowed more freedom, might justify it. The war has reduced the medical supplies of Germany to such an extent that cloth bandages and dressings, and all preparations requiring glycerine were rigorously conserved. The Germans carry their dislike of England and the English language so far that I saw an American nurse severely reprimanded by her chief, for writing notes on her medical chart in English instead of in German. But the thing that impressed me most was that the German authorities were not merely content with curing their patients as quickly as possible, but that in addition they laid great stress on putting a patient into such condition, that when discharged, even though unfit for military service, yet he could still be self-supporting and not be a burden upon the state. "There must be no unnecessary cripples at the end of the war" was the text of the official order from Berlin. Therefore, every bone wound had to be treated by an orthopedic surgeon. Of course, this involved tremendous work on the part of the whole medical service, but the splendid results which I saw at the Orthopädische Klinik certainly vindicated the extra labor, for Germany will have a smaller proportion of cripples than the other nations after this struggle is finished. After a man is passed as medically fit for military service again, he is granted a furlough before he is sent back to the trenches and, I believe, that the Germans are less reluctant to go back than the men of the Allies, although this may be explained by the feeling of obedience to discipline that is well drilled into a German soldier.

In France, where I worked for two months before the Serbian epidemic, the hospitals were all well equipped, and with the exception of the first few months when the wounded transportation system had still to be properly organized, the medical service was most efficient. At the American Ambulance at Nenilly, for instance, motor cars were kept constantly at La Chapelle where the Red Cross trains arrived. Patients were quickly brought to the hospital and inspected at once by the medical officer of the day. The patient is then undressed, all of his clothing and kit are sent to the sterilizing department and the man is given a thorough bath before being carried to the ward. Practically all of the men are given anti-tetanic serum at the first dressing station and the letter A is then chalked on the left leg, but if the stress has been too great, as during the engagement at Soissons, this injection must be omitted until later, so that one of the first duties of the receiving medical officer is to look for this chalk mark. If it has not been made, or in many cases, if it has been rubbed off during the transportation from the front, anti-tetanic serum is immediately administered. Consequently tetanus is practically wiped out. Although at present the hospital discipline has become more rigorous, yet the French *pion-pion* is much happier and more contented to remain wounded than the German Fritz.

In the English hospitals not only those conducted by the Royal Army Medical Corps but also in the American Women's War Hospital at Paignton, and in the Canadian Red Cross Hospital at Clevedon, one finds that the German efficiency is combined with a more human interest in the patient and his happiness. Tommy may not be put back into action quite as quickly as a German soldier but he certainly has much more comfort and pleasure during his stay in a base hospital. The medical transportation department has been splendid. Men from France are quickly passed through dressing stations and if the wounds are not too serious, they are sent home to England. From the Dardanelles small boats transport the wounded from the dressing stations on the shore of

Suvia Bay on Cape Hellas to hospital ships lying off shore, and if they happen to return by the *Aequitania*, they reach a base hospital in England within six days, while even the slowest ships always make the voyage in ten days. This sea trip has a very beneficial effect on the patients and very many of them are practically convalescent when they reach England.

A very large proportion of the cases from the Dardanelles have been medical—dysentery, both amebic and bacillary, paratyphoids, and a few rare cases of typhoid, although the “typhoid” inoculation has practically stamped out the last named disease.

In the care of wounds England has made tremendous contributions to science. For instance, I have seen what appeared to be hopelessly infected shrapnel and bullet wounds quickly cleaned up, and the patients' temperatures brought back to normal by immobilization and constant surface drip irrigations with hypertonic salt solutions. The treatment of fractures has also been greatly improved, and since the exhibition of new splint shield in London last week many new ideas have been put into practice. One patient in our base hospital here in Oxford with a compound fracture of the femur who required two orderlies to move him into a position so that his wounds could be dressed can now, with the aid of a new splint which suspends his leg on a movable trolley overhead, move himself about on his bed with perfect ease and no pain.

Very truly yours,
WILBURT C. DAVIDSON.

EXAMINATION OF NOSE IN EYE DISEASES.
HOTEL HARVARD, 640 HUNTINGTON AVE.
ROXBURY, MASSACHUSETTS.

Mr. Editor: When I was treating eyes at the Boston Dispensary, my friend Dr. E. D. Spear called my attention to the fact that many diseases of the eye,—conjunctivitis, blepharitis, episcleritis,—are dependent upon diseases of the nose. It is certain that they will not get well unless the nose is treated. Of course no competent oculist would operate for cataract unless he had made the tear passage sterile. I urge upon all eye surgeons to examine the nose in every eye case of an inflammatory nature, or to have it done.

Your obedient servant,
EDWARD L. PARKS, M.D.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-ninth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, Dec. 10, 1915, at 8:15 p.m.

I. Report of Council and nomination of officers.
II. Report of Treasurer.

III. The following papers will be read:

1. Simple Incision in the Treatment of Pyloric Stenosis, by James S. Stone, M.D., Boston.
2. Spasmophilia: Report of Ten Cases.—Etiology and Treatment, by Fred P. Webster, M.D., Portland, Me.

3. Fermentative Diarrhea in Infants, by Lewis W. Hill, M.D., Boston.

IV. Election of officers.

Light refreshments will be served after the meeting.

F. M. BUCKINGHAM, M.D., President.
RICHARD M. SMITH, M.D., Secretary.

ussion by David N. Blakely, M.D., M. J. Cronin, M.D., Edward N. Libby, M.D. Refreshments after the meeting. Telephone Roxbury 22753.

BRADFORD KENT, M.D., *Secretary,*
798 Blue Hill Ave., Dorchester.

THE HARVEY SOCIETY.—The third lecture of the series will be given at the New York Academy of Medicine, 17 West 43d Street, on Saturday evening, Nov. 27, 1915 at 8:30 p.m., by Dr. Eugene F. Du Bois, Cornell University. Subject: “The Respiration Calorimeter in Clinical Medicine.”

RECENT DEATHS.

DR. HORACE CHASE, a Fellow of the Massachusetts Medical Society since 1867, died at Dorchester (Boston), Mass., January 11, 1915, aged 83 years.

DR. CHARLES A. CHURCH, who died recently at Passaic, N. J., was born at Norwich, N. Y., in 1840. After receiving his preparatory education at Norwich Academy, he attended the Hahnemann Medical College of Philadelphia, and the New York Homeopathic Medical College. He was a member of the staff of the Passaic General Hospital and of St. Mary's Hospital at Passaic. He was formerly president of the New Jersey State Homeopathic Medical Society and of the New Jersey Medical Club. He is survived by his widow and one son, also a physician.

DR. WAYNE SMITH, who died of cerebral hemorrhage at Detroit, Mich., on November 12, was born in 1876. He was formerly for several years superintendent of the St. Louis City Hospital, and was known as an expert on hospital administration, concerning which he had published several works. He came to Detroit in 1913 as superintendent of the Harper Hospital in that city, a position which he held at the time of his death.

DR. EDWARD LIVINGSTONE TRUDEAU, who died on November 15 at Saranac Lake, N. Y., was born in 1848. He received the degree of M.D. from the New York College of Physicians and Surgeons in 1871 and, at first, began the practice of his profession in New York City. In 1884, however, he established a sanatorium for the treatment of tuberculosis at Saranac Lake; and from his work at that institution became noted throughout the country as an expert in the knowledge and treatment of the disease.

DR. ALBERT VEEDER, who died on November 16, at Lyons, N. Y., was born at Ashtabula, Ohio, on November 10, 1848. After graduating from Union College, New York, he received the degree of M.D. from the University of Buffalo, and after teaching for a time, engaged actively in the practice of his profession at Antwerp, N. Y. He had been interested, also, in experimental work on the transmission of typhoid, the open-air treatment of pulmonary tuberculosis, the problems of public water supply, garbage disposal and other aspects of sanitation.

DR. JOHN C. WEBSTER, who died on November 15 in Chicago, was born at Hopkinton, Mass., in 1843. He received the degree of A.B. from Dartmouth College in 1864 and that of M.D. in 1867 from the Harvard Medical School. He immediately settled in the practice of his profession at Chicago, in which he remained actively engaged until his retirement in 1908. He is survived by his widow and by four children.

APPOINTMENT.

WASHINGTON UNIVERSITY MEDICAL SCHOOL—Dr. Leo Loeb has been appointed professor of comparative pathology.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at Masonic Temple, 171 Warren Street, Roxbury, Tuesday, Nov. 30, at 8 p.m., sharp. Business communication on chronic nephritis by David L. Edsall, M.D., and dis-

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Address.

the minds of those intrepid adventurers on that momentous occasion. How eagerly must they have welcomed the first faint evidences of returning consciousness! Had that young man died then and there, for how many years would the blessings of anesthesia have been withheld from the human race? Only eleven years earlier (1835) Père Velpeau, the great French surgeon, had said. "Eviter la douleur dans les opérations est un chimère qu'il n'est pas permis de poursuivre aujourd'hui." Who would have dared to repeat the dangerous experiment? For an experiment and a most hazardous experiment on a human being, it certainly was. Happily the result justified their temerity and millions have been blessed by the bravery of the surgeon, the anesthetist, and the patient.

In Berlin where I was a student in 1865-6 the story ran—and I believe it was authentic—that a short time earlier Henry B. Sands of New York, urging the greater safety of ether upon Langenbeck, at his request, gave ether for him in his clinic. The patient died on the table from the anesthetic. Naturally this deferred the use of ether in Germany for years and cost many lives.

In this city and this hospital my topic—The Dangers of Ether as an Anesthetic—may at the first blush seem ungracious. But our profession ever seeks the unvarnished and untarnished truth. To recognize that there *are* dangers is the first step in eliminating them. When life is at stake ignorance is not bliss. Forewarned is forearmed.

THE DANGERS OF ETHER AS AN ANESTHETIC.*

BY W. W. KEEN, M.D., LL.D., PHILADELPHIA.

Emeritus Professor of Surgery, Jefferson Medical College.

IT is a great pleasure to tender my thanks to the Trustees and the Committee for their kind invitation to deliver an Ether Day Address.

In this historic place, 69 years ago this very day, occurred the first public use of ether as an anesthetic. We, who are accustomed to anesthesia, can hardly appreciate the courage of Warren and Morton on that memorable sixteenth of October, 1846. Surely also the bravery of the patient himself should not be overlooked. The name of Gilbert Abbott should always be held in remembrance.

I have often called the attention of my classes to a patient lying limp and apparently almost lifeless on the operating table. Lift the arm and it falls as if it were that of a corpse, touch the sensitive eye and the lids do not move. Cut the tender skin and it elicits no response. "Will he ever wake up?" "May not the flickering flame of life gradually fade away and forever?" "Have I not unwittingly killed this man?" Such must have been the insistent questions in

* Address delivered at the Massachusetts General Hospital, on the sixty-ninth anniversary of Ether Day, October 16, 1915.

When I accepted the invitation and selected my topic, which had not been considered in any of the former Ether Day Addresses, I thought I had chosen an easy task. But I had hardly begun my work when I found that great progress had been made, as to much of which I was inadequately informed.

While I have had a large experience during a long and active surgical life, yet, in consequence of my retirement from active practice in 1907, I have had little or no personal experience with a number of the newest anesthetics and the latest modes of their administration. Accordingly, to make up for this lack, I devoted the past summer to the diligent study of the recent work on anesthetics and anesthesia by reading the extensive literature (especially the valuable physiological literature) of the last ten years, to a considerable correspondence, as the friends whom I persecuted will testify, and in the early autumn to some careful observations of the administration of anesthetics in Boston, New York, and Philadelphia. It has had all the fascination of novelty and the exhilaration of success.

When I began my medical studies in 1860 there were but two anesthetics in use, ether and chloroform. Now the many anesthetic drugs, the different methods of using them, by inhalation, by insufflation, by arterial or venous infusion, by different routes,—the mouth, the nose, the rectum, the colon—by local anesthesia, by spinal anesthesia, by one drug alone or by two or more, together, or in varying sequences, by simple or complicated apparatuses, or costly and elaborate chambers for differential pressure, have almost reached the classical “57 varieties.”

During the last 10 years especially, the administration of anesthetics has been rapidly changing. It is becoming more and more an exact science instead of a mass of only empirical knowledge gained by practice and at the cost of danger or sometimes even of life. The multiplicity of valuable papers, the many set discussions in our medical societies, the exhaustive studies in our laboratories of research on the physics, the physiology and the chemistry of respiration and of anesthetics, the pathological changes observed in animals after intentional or accidental deaths, and after similar accidental deaths in human beings, the accumulated large statistics all demonstrate the deep interest, the scientific activity and the happy results of this new outburst of work in anesthesia.

One of the happiest results of this restless search for improvement is the rise of the *professional anesthetist*, an expert who by his mastery of the subject and his knowledge and presence of danger, is able to avert or to remedy the danger—an expert who is more and more definitely coming to be recognized as comparable to the expert specialist in other departments of medicine and surgery. Says Bloodgood:¹ “Accumulated experience and reading

... impress me more and more that anesthesia is an art in every sense of the word. *Specially trained anesthetists are necessary for safety.*”

The recent organization of the American Association of Anesthetists is another welcome evidence of progress. That professional specialists in anesthesia are greatly needed is strikingly shown by the frank reply to my questionnaire by the chief anesthetist of one of our best American hospitals. “To what do you attribute the deaths from ether?” was my question, and his reply began “Lack of skill in its administration.”

That such experts are specially needed in America is shown by the fact that Gwathmey’s American statistics² compared with those of Hewitt in England show that in this country our percentage of mortality from ether is *over three times as great as in Great Britain.*

Lest the general public who may read this may take alarm and exaggerate the dangers of ether, let me say at once that the deaths are estimated in various statistics as being only one death in 4533 administrations in America (Gwathmey), one in 5112 in Germany,³ one in 16,302 in Great Britain,⁴ and even only one in 50,000 (Rovsing).⁵ But even if it be only one in 50,000 yet if that one is *your* boy, it is a sorry consolation to know that 49,999 others escaped.

As soon as I fixed upon my topic I sent out to the members of the American Surgical Association a questionnaire as to immediate and delayed ether deaths, requesting exact figures if they were available, and estimated figures if they were not. I received 67 replies, for which I tender my sincere thanks to my correspondents, a number of whom took much pains in compiling their statistics.

In 20 replies the figures were exact, though those of several active surgeons covered only a very few years. These returns showed,

Exact number of etherizations	....262,002
Number of deaths	.....34
Or 1 death in 7,706 cases.	

This is an improvement over Gwathmey’s statistics, but the 34 deaths do not include some delayed deaths from pneumonia, nephritis, etc., which would probably bring the proportion down to about Gwathmey’s figures or possibly worse. The 47 others—including, I regret to say, myself—could only estimate the number of their cases and deaths. The approximation to former statistics is gratifying as showing that the estimates were reasonably accurate and not too seriously optimistic.

Estimated number of etherizations	356,500
Estimated number of deaths	.....73
Or 1 death in 4,884 cases.	

Both the estimated and the exact numbers show that we have still over three times the relative number of deaths as in Great Britain—a

² Anesthetics, p. 555.

³ Quirke, Arch. Ital. Chir., 1897, IV, 473.

⁴ Hewitt and Robinson, Anesthetics, London, 1912, p. 139.

⁵ Abdominal Surgery, Edited by Pilcher, p. 76 See footnote²

serious blot on our methods and results. This calls loudly for reform. The systematic use of duplicate charts, if collected from all available sources at intervals of five years, would show whether our results were improving or growing worse.

Compared with chloroform the dangers of ether are almost negligible. In Great Britain from 1910 to 1913 there were 700 inquests on deaths from anesthetics.⁶ Of these, chloroform and its mixtures were responsible for 478 and ether for only 28. What is the relative percentage of fatalities of each, however, we do not know.

Personally I was brought up by the elder Gross in the Chloroform School, and I generally used it in my earlier cases. But I was soon convinced of my error, and for the last forty years I have used chloroform very, very rarely. I regard it either alone or in mixtures as a most dangerous anesthetic. With Bevan⁷ and the Committee on Anesthesia of the American Medical Association,⁸ I would urge that it should be discarded, excepting in a few special cases, also in the tropics and in military surgery on or near the battlefield, and on naval vessels during action.⁹ In base hospitals and on hospital ships ether should be used.*

What we want is such an anesthetic and such anesthetists that there shall be *no deaths at all*. The search for this ideal anesthetic must be vigorously continued by experiment first upon animals. It has not yet been found. For every anesthetic known has its own dangers. I fear that even the best future anesthetic may not be wholly free from this possibility. As I have more than once pointed out, the ideal anesthetic should not preserve the consciousness of the patient, who would easily be terribly frightened at the least suspicion of danger, dangers which the surgeon has often encountered and easily vanquished. They would not only alarm the patient, but would often provoke uncontrollable physical movements which would cause serious dangers or entirely prevent the operation. This ideal anesthetic must also, if possible, be pleasant to administer, efficacious in abolishing all pain, free from noxious after-effects, and if possible, without danger to life.

Our commonest anesthetic—ether—is to me, personally, both as surgeon and as patient, so little repulsive, and has such very slight danger in competent hands, that after having used it thousands of times with patients, and taken it myself on six different occasions, so far as any feeling of apprehension or repugnance is concerned, I would as lief lie down on the table and take ether as I would sit down at my table and eat my breakfast. No

* The papers and discussions on Anesthesia in the American Surgical Association in 1912 and 1913 will well repay perusal by every surgeon and every anesthetist.

⁶ Editorial, Jour. Amer. Med. Assn., April 4, 1914, p. 1099.

⁷ Trans. Amer. Surg. Assn., 1915, and Journal American Medical Association, October 23, 1915, p. 1418.

⁸ Jour. Amer. Med. Assn., June 11, 1910, p. 1987.

⁹ McCullough, Jour. Amer. Med. Assn., Sept. 25, 1915, p. 1099.

one, however, except by *force majeure* shall ever again give it to me as on the first occasion, in 1863, from a closed cone saturated with ether, which almost suffocated me. By the open drop on a mask or the Allis inhaler,* which are practically equivalent, I have five other times been most pleasantly and efficaciously anesthetized. Not once have I had the least nausea. The long-continued ether taste and once some gas pains were the only unpleasant aftermaths. *Haud inexpertus loquitur.*

"If patients could be educated to be as pleased when they are told that a surgical operation is necessary as they are when given a tonic, Utopia would be reached," says Bloodgood.

I reached such a Utopia some years ago when a young girl burst into tears upon my telling her that an operation for appendicitis was necessary. I tried to comfort her, but to my surprise she replied between her sobs that she was weeping for joy, for she had feared I would decide not to operate. Such Utopias, however, are not yet common, but I have found them gradually growing more frequent as the public are more and more convinced of the safety of modern operations and the danger of delay.

The students in our medical schools see a great many anesthetized patients, but their attention is given chiefly to the operation. Too often they receive little and in some schools no careful instruction in anesthesia. Far too frequently the function of the etherizer is delegated to the ever-changing junior residents, as if, forsooth, it were of minor importance. Next to the surgeon and even before his first operative assistant, in my opinion, stands the anesthetist, holding the scales of Life and Death. Happily, at least in the use of ether, the margin of safety is so wide that 'even inexperience and inattention are rarely harmful.'

It should be the duty of our medical schools and their hospitals to *instruct all students in anesthesia and to give them experience* by having them administer anesthetics under the supervision of their experts. In view of the constant and necessary change of internes there should be on the staff of each division a permanent expert. In small hospitals at least one of the staff should make it his business to become an expert by constant study and practice.

The anesthetist should if possible always see the patient beforehand. He can thus establish an "*entente cordiale*" which will do much to prevent fear and other psychic elements of danger.

Gerster says that long ago he learned in Billroth's clinic to be careful with patients who exhibited fear but that he never understood the reasons until Crile and Yandell Henderson explained them.

The most striking instance of the *physical results of fear* I have ever known personally was a

* The ether should be dropped on the Allis inhaler just as on a mask, slowly at first, faster and faster in a few minutes, but never poured in. Moderate rebreathing can be obtained by covering the upper surface by the hand.

little girl of nine in my ward at the Jefferson Hospital. Her clothing had caught fire and she had been so dreadfully burned that a year after the accident I was compelled to amputate the left arm at the shoulder joint. She made an excellent recovery *per primam*, but had not been discharged because an old ulcer on the deltoid flap had not yet quite healed. Four weeks after the amputation she was suddenly awakened in the middle of the night by a nearby fire. The ward was high studded, the windows many. It was no wonder, therefore, that remembering her own dreadful experience and seeing the flames and the brightly illuminated ward, she should think the ward itself afire and become terrified. A thoughtful nurse took her temperature, which had long been normal, and found it 105.4°. The next morning it was 99°.

A similar but less striking instance is recorded by Crile and Lower¹⁰ in which simple fear raised the temperature to 101.2° and the pulse to 150. Bloodgood¹¹ reports a case in which fear alone caused the blood pressure to fall in ten minutes from 140 to 80 m.m. In some cases even death has resulted from fear before an anesthetic has been given.

Crile is none too insistent upon the psychic as well as the physical conditions, which are so conducive to smooth recovery.

The condition of the blood should be ascertained beforehand in all serious operations, especially in anemic patients. DaCosta¹² and DaCosta and Kalteyer¹³ and others have demonstrated the diminution of hemoglobin due to ether. While Mikuliez advised against any general anesthetic in case the hemoglobin was below 30%, DaCosta and Kalteyer represent a better present opinion by drawing the line at 50%.

Observation and charting of the blood pressure not only beforehand, but at frequent and regular intervals during every important or prolonged operation, especially as a guide to the degree of shock, is admitted to be important by all anesthetists.

The anesthetist should give quick warning of any serious fall in the blood pressure, which will enable the surgeon to decide for or against transfusion, for or against attempted extirpation of a brain tumor, for continuing or quickly terminating an operation. This decision can thus be made with scientific accuracy far more surely than by observation of the general physical appearance of the patient. Accurately known blood pressure is of greater value than the rate or quality of the pulse, and as pointed out by Harmer, gives warning from 5 to 20 minutes earlier than the pulse. Moreover, in the doubtful cases it is the most useful.

Prior to operations the anesthetist as well as surgeon should make himself familiar with the condition of the heart, kidneys, blood pressure, hemoglobin, and any unusual condition: should

see that the mouth, tongue, teeth and tonsils are in proper condition and that provision be made to prevent chilling of the patient,—an important point never to be overlooked. Chilling and hemorrhage are the most potent factors in producing shock. Chilling by cold solutions and by alcohol used in pre-operative preparations do harm, as demonstrated by Harmer.

The anesthetist should provide against certain dangers common to all anesthesias, such as false teeth and other foreign bodies in the mouth, the prevention of paralysis of the musculospiral and other nerves from pressure or from abnormal positions of the arm or leg. I have had one non-fatal case of hemiplegia occurring a few hours after etherization. It is possible but not certain that this was a direct result of the increased blood pressure. Several other similar and sometimes fatal cases have been reported. It is to be remembered that in a few cases a hemiplegia has occurred shortly before the time set for operation. Had the hemiplegia occurred only a few hours or days later it might have occurred during the operation and have been (erroneously) attributed to the ether.

During operation the anesthetist should attend strictly to his own business and especially remember that the first half hour is the period of greatest danger. He should glance at the operation only from time to time, not to study the operation, but in order to anticipate the need for lighter or deeper anesthesia and when the anesthetic may be stopped. Of course he should keep himself constantly informed of the general condition of the patient by observation of the respiration, the most important function of all, of the blood pressure, pulse, pupil, color, and condition of the skin as to sweating.

I believe that an *anesthesia chart* should be kept in every case—even for a brief etherization. How elaborate this should be is a debatable question. The American Surgical Association could do good service, as Lilienthal has suggested in a letter to me, if through a committee it should prepare a standard chart adapted to most hospitals and most anesthetists. I am persuaded that a chart tends to concentrate the attention of the anesthetist upon his "job" and make him more careful. In a few years such charts would also furnish us with very valuable and extensive statistics. The form should be full enough to make it valuable and to compel the average anesthetist to make close and continuous observation, yet not so elaborate and detailed as to defeat its own object. Some especially expert anesthetists would prefer a more elaborate chart for more detailed observations. The American Surgical Association might also prepare this fuller form and each anesthetist could make his choice.

On first seeing the charts used by Boothby¹⁴ I was staggered by their apparent complexity. When analyzed, however, I found there was less than one observation per minute. In prac-

¹⁰ Amer. Association, p. 97.

¹¹ Proc. Med., December, 1912, p. 218.

¹² Med. News, March 2, 1895, p. 125.

¹³ Annals of Surgery, 1901, Vol. xxvii, p. 329.

¹⁴ Jour. Pharmacol. and Exp. Therap., March 1914, p. 329.

tie, as I have observed, Boothby easily records them all himself in a quiet leisurely fashion. Instead of distracting attention from the patient, these records fix the anesthetist's attention much more closely upon the patient's condition than if no chart is used. The occasional anesthetist will hardly be able to utilize any but the simplest chart.

If it be objected that a chart, and especially a full one, is a great deal of trouble, I answer: "Giving ether is a serious business, always attended by possibility of danger. Life may depend on the carefulness of the anesthetist, and this is surely worth any amount of trouble."

One feature of the chart of the Massachusetts General Hospital is exceedingly valuable, viz.—that there is a first or pre-operative part to be filled in by the house officer (surgical or medical), who has had charge of the patient, giving most of the data the anesthetist should know beforehand; a second part relating to the data and conditions during operation to be filled in by the anesthetist; and a third post-operative part to be filled in by the nurse in charge of the case immediately after operation. A *duplicate carbon copy* should be made, the original to be filed with the notes of the case; the copy with the consolidated "Anesthesia Records."

Here the question arises whether a doctor or a woman nurse is in general the more desirable anesthetist. No hard and fast rule can be laid down. Surely no legislative action is called for, though it has been actually proposed. If one has an Alice Magaw (Kessel) or a Florence Henderson of the Mayo Clinic* or a Sister Ethelrida of Murphy's Clinic the decision is easily in favor of the trained nurse. If, however, one has such skilled doctors as we find especially here in Boston and other of our large cities the decision is reversed.

The nurse lives in the hospital and can see the patient at all times. She can soothe the timid patient, who is more often of her own sex, better than most men. She is more vigilant in observing small details. She will be less likely to be lured away from the rôle of the professional anesthetist than a man, who too often uses anesthesia merely as a stepping-stone to private surgical practice. A doctor, however, because he has studied medicine, is more thoroughly equipped than a nurse (until her experience runs into hundreds of cases) to appreciate possible or even impending dangers. Moreover, the doctor is less apt to be upset and "flustered" by a sudden perilous emergency. The best solution of all perhaps is an intelligent and alert woman doctor, such as Dr. Isabella C. Herb in Bevan's Clinic. Such Herbs, however, do not grow in every surgical garden.

Personality, intelligence, zeal and quick wit may easily be worth more than greater knowledge.

* For two admirable and practical papers see Alice Magaw, Surg., Gynecol. and Obst., 1906, Vol. iii, p. 795, and Collected Papers, Mayo Clinic, 1905-09, p. 567; and Florence Henderson, St. Paul Med. Journ., February, 1914, p. 74, and Collected Papers, Mayo Clinic, 1913, p. 701.

In order that medical men and women shall devote themselves to anesthesia as a specialty, the public must be taught that safety lies in having an expert anesthetist, and that like any other expert, if he is to obtain a living as such, he must be well paid, otherwise he cannot devote his whole time to this specialty.

I might add also that the profession itself does not yet sufficiently appreciate this same point. Roberts¹⁵ cordially endorses this view. The peril he so valiantly attacked is gradually passing away.

One of the real but infrequent dangers of ether is its *inflammability*. I should probably omit this because of its infrequency had I not had personally what might have been a very serious accident.

Nearly everybody thinks that the vapor from a *volatile* substance of course rises upwards. The etherizer must never forget that the vapor of ether is *heavier* than air and falls downwards. Saturate a bit of gauze with ether. Hold the back of the hand first *above* the gauze and then *below* it and you will never forget that ether vapor falls. In 1863, after Gettysburg, in a large military hospital of 3000 beds in pavilions built wholly of wood, I was trying to secure a large bleeding vessel just above the inner end of the clavicle. The only available light was five candles stuck in five augur holes in a square block of wood and held necessarily very near the ether cone. Suddenly the ether flashed afire, the etherizer flung the glass bottle of ether (it was before the days of our present tin cans) in one direction and the blazing cone fortunately in another. We narrowly escaped a serious conflagration. Why did I not use chloroform, which is non-inflammable, in conditions well known before I began to operate? I fear I must admit gross thoughtlessness. My only consolation is that the patient suffered no harm. Neither he nor I was burned and he recovered without further incident.

So happy an outcome does not always occur, for there are on record a number of cases of more or less serious burns of both patient and surgeon. In one case, when the switch of an electric hand light was turned on to observe the color of the face (the patient being prone) the spark ignited the ether.

"Inflammability of the patient" might also be mentioned as a possible danger to the *surgeon*. Here again I speak from two personal experiences. In one, the patient in his early frenzy, disengaged himself suddenly from the etherizer, scattered the assistants and was about to assault me, when fortunately, a strong Irish orderly who, again fortunately, was standing behind him, so that the dazed patient was not aware of his presence, seized him around the waist and held him till the stage of excitement quickly passed away. Though bound like Samson with many withes, four strong men and the etherizer a few minutes later scarcely prevented his reduc-

ing the table to firewood in a second attempt to "get" me.

The other case I relate especially as a warning that no one should ever give ether without the presence of another person, except in emergencies when such help cannot possibly be obtained.

Many years ago I had to open an abscess in a young man. The etherizer did not appear, and as the patient was suffering I unwisely gave him the ether alone. He had taken only a few inhalations when he was seized with the delusion that I was about to do him harm. With one sweep he threw the ether cone away, leaped up, seized a chair and swinging it high above his head was ready, nay determined, to brain me. As he was an athletic six-footer, and as he stood between myself and the door, fight and flight were equally impossible. I lost no time, you may be sure, in entering what I believe the lawyers call a plea of "confession and avoidance"; a confession of my folly, and a lively avoidance of my enemy. I have always accepted the axiom that two bodies cannot occupy the same space at the same time, but ever since that "episode," as Artemus Ward would have called it, I have been equally convinced that one body can be in two places at the same time. The only refuge I did not seek, was under the bed, and the evident reason for my not achieving that ignominious retreat was that my legs would have broken before I could have attained its friendly protection. Don't hint at a "*mauvais quart d'heure*." Less than two such "bad minutes" more than satisfied me and I am sure would have fully satisfied you.

The incident, which I can now blithely portray as a comedy, thus perhaps making its lesson less quickly forgotten, came perilously near to ending as a tragedy. Had the uplifted chair not been an impediment as well as a weapon, and had I not been forty years younger and forty pounds lighter, you would probably be listening to some other orator today.

In the case of women patients the rule never to give ether alone should be *absolute*, for delusional dreams do occasionally occur during anesthesia and are honestly believed after recovery. A charge of assault may easily follow either as a result of this sincere belief, or as a means of blackmail. If no witness was present the only evidence can be the positive assertion by A and the equally positive denial by B. How can the most intelligent jury be sure to decide aright? Moreover, if sudden death should occur, a third person as a witness would evidently be most desirable.

Unfortunately I have to confess my own delinquency in not keeping any record of my etherizations. I must, therefore, rely upon my own and my assistants' memories as to any fatalities. Two deaths from chloroform stand out very clearly in my memory, and had I had any from ether I feel quite certain that I should not

have forgotten so deplorable an event. I have had several very narrow escapes, but after a most careful review of my cases and conferring with Drs. DaCosta, Taylor and Spence, who have etherized at least 75% of all my cases, we are all four so fortunate as not to be able to recall a single case of death, either immediate or remote, from ether.

Three of my patients have almost been drowned by an "*inundation of mucus*." One was a boy three or four years old whose mouth, shortly after the operation was begun, looked as if he were blowing soap bubbles. The loud bubbling respiration and his cyanosis could not be misinterpreted. He was saved by the simple expedient of holding him upside down by his heels. Frothy watery mucus poured in a stream from his mouth and nose. In a few moments the operation could be resumed and was completed without further trouble. The second was a man who was similarly rescued by Dr. Taylor's mounting the table, placing the man's legs over his shoulders and thus almost completely inverting him. The third case—a woman—was fortunately in a hospital and on a suitable table. She was at once placed in the extreme Trendelenburg position and quickly relieved. I mention these because I have seen reports of several deaths during operation, which, so far as I could judge, might have been prevented by a similar simple treatment, which is always available.

This "drowning" by mucus, as Connell has pointed out, is most likely to occur in the narrow zone between a light subconscious anesthesia and a profound and asphyxial anesthesia. In that same zone also vomiting and consequent aspiration pneumonia are serious dangers.

The dangers on the cardiae side I need not describe in detail as Dr. Finney¹⁶ considered them fully in 1901 and I have little to add. I may be allowed a moment only to say that I would far rather operate on a case with a bad heart than with bad kidneys. Finney also called attention to the infrequency of deaths from heart disease under ether as compared with their great frequency in the general community. Patients with any cardiae disease of course run greater risks than those with healthy hearts, but as Oehsner has well said, such cases "are safe because they are considered especially unsafe" and therefore extra care is given them.

The chief danger is from myocardial rather than from valvular disease. I may cite a single case as evidence that valvular disease may not be so great a danger as is sometimes believed.

The worst case of valvular disease I have ever seen I operated on in January, 1888,—a woman then 62 years of age with marked tricuspid and mitral regurgitation. I resected the inferior dental nerve for unbearable tie. Ether was very carefully given and no trouble arose. In 1895 at nearly 70 years of age, she required a second operation for a recurrence. Had I not

¹⁶ Trans. Coll. Phys., Phila., 1901, 13.

done the first operation myself I might almost have doubted whether the jaw had ever been touched, so perfectly normal did the bone appear and so apparently normal were the nerve and its canal. Her valvular disease had become far worse. Prof. H. A. Hare kindly took charge of the ether. In both operations the Allis inhaler was used. During the second operation the external jugulars were enormously distended and the blood from the wound was very dark, especially toward the end of the operation. Hare writes me: "It was the most serious case of valvular disease that I have seen take an anesthetic. Neither have I ever seen such marked tricuspid regurgitation nor such extraordinary pulsation of the liver in any case, much less one that has been anesthetized. It is interesting to note that the administration of just enough ether to keep her under acted as a stimulant to her heart so that her pulse improved. It was only toward the latter part of the operation that the regurgitation became so great that intense cyanosis developed." Yet she was out of bed on the third day and went home on the sixth. She died two and a half years later. She was a patient of Drs. S. Weir and John K. Mitchell. The latter made the *post mortem* and reported that the right auricle itself was as large as a good sized heart and held the entire fist. The mitral orifice admitted the tips of four fingers, the tricuspid the thumb and three fingers. The pericardial sac was entirely obliterated.

The respiratory dangers are even more to be feared than the cardiac. During anesthesia the chief danger is paralysis of the respiratory center; after anesthesia a post-operative pneumonia.

The studies of Haldane, Priestly, Poultton and others in England and of several observers, notably Yandell Henderson of Yale, in this country have brought prominently before the profession the danger of *Acapnia*, i.e., the lack of carbon dioxid.* This gas, formerly regarded only as a noxious waste product, is now believed to be the irritant which calls into activity the extremely sensitive respiratory center.†

Poultton¹⁷ by forced breathing for two and a half minutes before the British Physiological Society, produced such a dangerous acapnia in himself that several of the physiologists expressed alarm for his life and at least one had to leave the room.

When a patient struggles or screams while being etherized, thus over-ventilating the lungs and dangerously diminishing the carbon dioxid, if

* Henderson has a series of valuable papers in the Amer. Jour. Physiol., 1908-1911, Vols. xxii-xxvii. That on *Acapnia and Anesthesia*, is in Vol. xxvi, p. 260.

† As noted by Campbell, Douglas, Haldane and Hobson (Jour. Physiology, 1913, Vol. xli, p. 301) the facts recently brought forward by Hesselbach point clearly to the conclusion that what the respiratory center really responds to, when it responds to CO_2 , is the balance of H-ion concentration in the blood; and as an increase of 2 m.m. of CO_2 pressure corresponds to a scarcely measurable increase in the H-ion concentration of blood, it follows that the respiratory center is extremely sensitive to changes in the H-ion concentration. (See also Douglas and Haldane, Jour. Physiol., 1909, Vol. xxxviii, p. 420.)

¹⁷ Johns Hopkins Hosp. Rots., August, 1910, p. 235.

the etherizer becomes nervous and gives the ether intermittently, and especially if in these conditions any considerable amount of ether be suddenly poured on the inhaler, it may easily be enough to cause death by reason of its concentration. It must be clearly understood that not the amount of ether inhaled, but its concentration in the inspired air, is the chief danger. Even two or three deep inspirations in such conditions are fraught with danger not only to the respiration but to the heart.¹⁸ Herein lies one of the chief merits of the Connell anesthetometer, as such a sudden concentration is impossible.*

In acapnic cases Henderson suggests a very simple means of temporary re-breathing in order to supply the needed carbon dioxid by holding a (grocer's) paper bag over the mouth and nose for a time. In an emergency the two hands could be placed over the patient's mouth.

It is also possible that not only may there be an insufficiency of the stimulating carbon dioxid but in certain conditions there may be a reduction in the irritability of the respiratory center itself which may add to the danger.† Future experimental research may reveal more clearly these causative conditions and also the means of avoiding them.

"The great hyperpnea produced by a rapid fall in the oxygen pressure of the inspired or alveolar air is not due to the direct effect of want of oxygen on the respiratory center, but to that of the carbon dioxid present . . . in the blood. The action of this carbon dioxid is reinforced by the acid or other products produced by the want of oxygen, so that the threshold pressure at which the carbon dioxid excites the center is lowered."¹⁹

But besides its effect on the respiratory center, an excessive loss of carbon dioxid, it is claimed,²⁰ produces paresis of all unstriped muscular fibers, including those of the vascular system. The blood then accumulates in the internal vessels, and so is followed by facial pallor instead of normal pinkness. To guard against this paresis and consequent pallor Bryant and Henderson,²¹ who regard acapnia and anoxemia as "the anesthetist's Scylla and Charybdis," propose that his "sailing orders" should be "keep the patient pink." Whether this theory is correct or not, the order is well worth obeying. Under the Equator, however, and in our equatorial fellow citizens I fear that it would hardly be an attainable tint.

In the intestines, it is claimed that this paresis of the unstriped muscle halts peristalsis, thus

* The foregoing and some other later statements seem simpler and more easily understood by others than physiologists than if they were in every detail more technically exact.

† See the admirable paper by Peabody, "Studies on Acidosis and Dyspnea in Renal and Cardiac Disease," with references to other papers. Arch. Int. Med., August, 1914, Vol. xiv, p. 236.

¹⁸ Henderson, Trans. Amer. Surg. Assn., 1911, p. 234.

Haldane and Poultton, "Effects of Want of Oxygen on Respiration," Jour. Physiol., 1908, Vol. xxvii, p. 390.

¹⁹ Henderson, Amer. Jour. Phys., 1909, Vol. xxiv, p. 66; and Hooper, Amer. Jour. Phys., 1911, Vol. xxiii, p. 361, and Vol. xxvi, p. 47.

²⁰ Jour. Amer. Med. Assn., July 3, 1915, p. 1.

causing the gas pains which sometimes are a post-operative complaint and may be a serious danger.* But if acapnia is prevented by a preliminary dose of morphin and atropin and by moderate rebreathing during etherization, normal peristalsis, it is claimed, will persist at the end of a laparotomy.

The greatest respiratory danger of ether is *post-operative pneumonia*. While ether itself is, I believe, a moderate irritant to the air passages (in spite of Rovsing's assertion), undoubtedly the principal cause of such post-operative pneumonia is aspiration of the contents of the mouth. Kelly²² of Liverpool and Hölscher²³ by putting coloring matters in the mouth have placed the fact of such aspiration beyond doubt. Kelly has shown equally clearly that one of the great advantages of endotracheal insufflation is that this aspiration practically does not occur.

The aspirated matter will consist of the oral mucus (not seldom, be it remembered, laden with the pneumococcus), the discharges from any lingual, oral, dental or tonsillar ulcer or abscess, and the contents of the stomach, which have been vomited but not wholly ejected. Hence the necessity too little appreciated both by surgeons and anesthetists of getting the mouth, tongue, teeth and tonsils in proper condition before operation.[†]

Besides this, the utmost care should be used by the anesthetist to prevent vomiting if possible. "If on minimal [not, observe, maximal] dosage, the breathing becomes shallow with an occasional deep breath," vomiting is impending. (Connell.) Should it occur, the anesthetist should promote the speedy and complete escape of the vomitus by turning the head sidewise in extension and thus prevent or diminish aspiration. The prevention of aspiration pneumonia lies largely in the hands of the anesthetist. One of my correspondents confesses to having had two deaths on the table from inhalation of the vomitus during recovery from the ether.

But we must not attribute all the pneumonias which follow ether to the irritation of the ether itself, to its mode of administration or even to aspiration. Armstrong²⁴ has shown that pneumonias are especially frequent in cases of septic foci existing at the time of operation and attributes these pneumonias largely to septic emboli, an opinion re-enforced by Beckman²⁵ of the Mayo Clinic. In operations in the upper abdomen such emboli are especially to be feared. This is due partly to the natural inhibition of diaphragmatic breathing and therefore of full expansion of the lower part of the lungs by reason of the pain.

* Such "gas pains" have not been very common in my own experience and observation.

[†] I have seen foul roots of old teeth which should have been removed some days before the operation extracted by the surgeon at the end of an operation.

²² Brit. Med. Jour., 1912, Vol. ii, p. 17.

²³ Arch. klin. Chir., 1898, Vol. lvii, p. 175.

²⁴ Brit. Med. Jour., May 19, 1906, p. 1141.

²⁵ Annals of Surgery, 1913, Vol. lvii, p. 718.

Pneumonias may also follow local anesthesia, in which there can be no question of aspiration. Gottstein²⁶ and Mikulicz²⁷ both report larger percentages of pneumonias after local anesthesia than after general anesthesia. The experience in the Mayo Clinic confirms this observation. The probable reason is that the weaker and more serious cases have had local anesthesia. "Most of the lung complications have developed in patients who have been operated on for carcinoma, especially of the stomach, and the autopsy has shown fine metastatic growths in serial sections of the lungs."²⁸

Anuria fortunately is not a very frequent sequel of ether, but is a very serious one. Ether as a rule decreases the urine for a day or sometimes longer. I always watch the bedside chart with anxiety for the first two or three days to ascertain the urinary output. As a rule after 24 or 48 hours there is a moderate increase. I have lost two patients from anuria. The first was a case of nephro-lithiasis, occurring unfortunately just a year before the discovery of the x-rays. I knew of course of the moderate frequency of bilateral renal calculus, and that temporary suppression sometimes followed unilateral nephrotomy. In this case during the first 28 hours after the nephro-lithotomy only eleven ounces of urine in all were secreted; in the next four days only twenty-five to twenty-eight ounces daily. In spite of vigorous treatment, the amount fell to fourteen, and then to three and a half ounces with absolute suppression for the last 36 hours. She died on the eighth day. I had anxiously considered the question of an exploratory operation on the other kidney, but there was absolutely no clinical evidence of any stone there. If no stone were found at a second operation and she had died, I should forever have had a burden on my conscience. The x-rays would have decided the question and might have saved her life, for a calculus in the other kidney was found at the *post mortem*.

The other case had a large sarcoma of the shoulder. Removal of the entire half shoulder girdle was the only possible operation. He died in 31 hours, never having secreted a drop of urine.

Chace²⁹ reports the examination of the urine in 125 consecutive cases. Two cases—with no albuminuria before operation—died from suppression on the seventh day. In the great majority both of normal and abnormal kidneys there is happily only a temporary diminution, but the amount of the urine should always be most carefully recorded and vigilantly watched.

At present it is impossible to predict such suppression. The remedies, such as they are, are well known but may easily be of no avail.

Glycosuria also may follow etherization, as was first shown in dogs by Hawk³⁰ in 1904. As

* Letter from Miss Henderson.

²⁶ Arch. klin. Chir., 1898, Vol. lvii, p. 409.

²⁷ Verhandl. Deutsch. Gesellch. Chir., 1901, Part ii, p. 560.

²⁸ Postgraduate, N. Y., 1904, Vol. xix, p. 302.

²⁹ Arch. Int. Med., July, 1911, Vol. viii, p. 39.

a rule it is only temporary. Hawk and his associates have shown that this glycosuria, at least in dogs, is especially dependent on diet. A carbohydrate-free diet always was followed by glycosuria while after a mixed diet there was none. That this glycosuria is not wholly the result of etherization (at least in cats) but may be in part an "emotional glycosuria," caused by the excitement attending operation, was first pointed out by Cannon,* and has since been confirmed by others both in this country and in Germany. Henderson and Underhill³¹ attribute the glycosuria to acapnia. Higgins and Ogden³² have shown that injuries of the head were followed by glycosuria in nearly 10% of the cases.

In diabetes it would therefore be advisable to use nitrous oxid and oxygen or, if possible, local anesthesia, since ether might precipitate a fatal diabetic coma.

Acidosis. Recently the dramatic fatal cases reported by Brewer, Beesly and Bevan, and the researches of Crile, Hawk, Bevan and Favill; of your Boston men, Ladd and Osgood, Peabody, Kelly, Brackett, Stone and Low, and numerous others, have focussed attention upon acidosis and its various results, especially acetoneuria.

Could anything be more distressing than such a case as Brewer's?³³ A boy of 12—a successful operation for appendicitis—everything practically normal till the third night after operation. Then pulse, temperature, and wound all being normal, sudden attacks of terror awaking him from sleep, his screams heard all over the building, increasing somnolence in the intervals, next a sweetish breath, repeated vomiting, acetone and diacetic acid found in the urine and death in 32 hours after the first piercing scream! Such a case breaks a surgeon's heart.

The pathological changes in acidosis are especially pronounced in the liver, so much so that Bevan and Favill call it an "hepatic toxemia." Crile[†] and others have shown that this is a local pathological instance of a more widely distributed normal process. All the activities of the body, every "transformation of energy" produces acid by-products, which in turn must be neutralized if life is to be sustained. The kidney, as pointed out by L. J. Henderson,³⁴ separates the non-volatile acid from the base of these acid by-products of metabolism, excretes the acids in solution and returns the bases to the blood to be used over again in neutralizing additional acid. The volatile acid—carbon dioxid—escapes by the lungs. The H-ion concentration of the blood (PH) is an index of the acidity of the blood and of its carbon dioxid³⁵ content. This carbon dioxid stimulates the respiratory center

* Proc. Amer. Philosoph. Soc., 1911, p. 227, and Amer. Jour. Physiol., 1911-12, Vol. xxix, p. 261.

[†] Influence of Inhalation Anesthesia on Acidity of Blood, etc., Annals of Surgery, January, 1915, p. 6; Phenomena of Acidosis, etc., Trans. Amer. Surg. Assn., 1915, both by Crile.

³⁰ Amer. Jour. Physiol., 1911, Vol. xxviii, p. 275.

³¹ BOSTON MED. AND SURG. JOURN., Feb. 21, 1895, p. 197.

³² Annals of Surgery, 1902, Vol. xxxvi, p. 451.

³³ Jour. Biol. Chem., 1911, Vol. ix, p. 403.

³⁴ Peabody: "Studies on Acidosis and Dyspnea in Renal and Cardiac Disease," Arch. Int. Med., August, 1914, Vol. xiv, p. 236.

and also causes an increased output of adrenalin. Crile claims that his histologic and chemical studies have shown that the changes in acidosis are limited to the brain, the adrenals and the liver. Certainly these organs and especially the liver do show marked changes. "While in acidosis the H-ion concentration of the blood is not altered, its *reserve alkalinity* (i.e. the ability to return normal reaction despite the addition of acid) is decreased to a measurable amount."³⁵ Carbohydrate starvation especially favors acetoneuria.

Kelly³⁶ examined the urine in 400 cases in the Boston City Hospital and found 46 which showed acid intoxication in 17 different disease conditions. Ladd and Osgood³⁷ in their important paper showed that in 120 patients etherized with the Blake cone, acetoneuria was found in varying degrees and proportionate to the length of the etherization in 106 (88.5%), whereas in 102 by the open method this percentage fell to 26%, or less than one-third as many as when the cone was employed—a very serious indictment of the cone method. Gatch³⁸ has emphasized this danger and I think explained the reason for it.

In some cases the symptoms,—persistent vomiting, sweetish (acetone) odor of the breath, peculiarly pink lips, dry tongue and mouth, give us warning. Examination of the blood and urine will convert suspicion into certainty.

The administration of water, glucose and sodium bicarbonate, the lessening of all physical and psychical conditions which increase the transformation of energy are the best preventive remedies. If there is no manifest and speedy improvement no general anesthetic should be given. Local anesthesia should be employed.

But in not a few cases no symptoms whatever betray its approach until the storm bursts in all its fury. Future studies and experiments on animals it is to be hoped may furnish us with warning signals that may enable us to prevent or vanquish this not very common but terrible danger.

What now is the conclusion of the whole matter? In my opinion "straight ether" by the open drop method on an Allis inhaler or a simple mask is by far the best and safest routine anesthetic. I am glad that such staunch upholders of more elaborate and accurately scientific methods of administration, as Boothby and Connell, both upheld this dictum. This is especially the method of choice for doctors who only occasionally give an anesthetic, because the margin of safety with ether is so wide.

In some clinics from which I have replies in exact figures, many thousands of patients have been etherized especially by this method without

³⁵ Van Slyke, Stillman and Cullen, Proc. Soc. Exp. Med. and Biol., 1914-1915, Vol. xii, p. 165.

³⁶ Annals of Surg., 1905, Vol. xli, p. 161.

³⁷ Annals of Surgery, 1907, Vol. xvi, p. 460.

³⁸ Since the delivery of this address an interesting statistical paper on the "Examination of the Urine in 214 Consecutive Cases in Draver's Clinic" by Bradner and Reissmann has been published in the American Journal of Medical Science, Nov., 1915, p. 727.

³⁹ Trans. Amer. Surg. Assn., 1911, p. 198.

a death. Alice Magaw (Kessel) and Florence Henderson have to their credit respectively 22,000 and 20,000 administrations without a death. But other clinics have a mortality of one in 5000, one in 3000 to one in 451,⁸ thus bringing the average mortality down to 1 in 7706. Inclusion of the late deaths would make the proportion much less favorable.[†]

Evidently we ought to and must attain better results, especially when the British surgeons and anesthetists have shown us that they can be realized. To attain these better results we need in my opinion:

1. Many professional anesthetists.
2. The use of an anesthesia chart in all cases.
3. The collection of statistics, best by the American Surgical Association at intervals of five years.

4. Instruction of all medical students in the theory and practice of anesthesia.

5. Straight ether by the open drop method as a routine method instead of mixtures and sequences. I believe all of the latter to be more dangerous than ether.

6. More accurate dosage of the ether by the anesthetometer as a gas on the basis of its anesthetic tension, *i.e.*, the partial pressure of the ether vapor in the respired air.

Meyer and Gottlieb⁹ frankly attribute the great majority of accidents to "faulty management and ineptuous dosage of the anesthetic," and again (pp. 74-5) to "the administration of too high concentrations of the anesthetic." A knowledge of this concentration or "anesthetic tension" cannot be obtained by observation. It must be by exact measurement in millimeters of mercury.

In spite, therefore, of the splendid results in certain most competent hands, I believe that others less skilled would achieve better results by some such "instrument of precision," and the most skilled and successful would find great comfort in this more exact knowledge.

Science began with the substitution of the balance, the yardstick and the clock, for even the most accurate guesses as to weight, dimension and time. In anesthesia the same I feel must hold good.

Of all the apparatus I am acquainted with, the Connell anesthetometer appeals to me as the best. It deals with ether in the form in which it actually reaches the patient's lungs, that is as a gas and not as a liquid. The tension is easily and quickly regulated according to the needs of the patient. The aleoholic, the child, and the

⁸ As to this report from one of the ablest of American surgeons, it is but just to state that he only recently began to keep systematic anesthesia records. It is evident from the details he gives that very exceptional cases happened to be operated on during the short period since he began his records. We must all admire his honesty in giving such exact figures.

⁹ All the British and American figures as well as Gurt's and Rowings' (see page 822) are to some extent a matter of definition of what is a "death from ether." One surgeon (or anesthetist) would admit and another reject the late pneumonias and alleged "status lymphaticus" (Henderson, *Trans. Amer. Surg. Assn.*, 1911, p. 230), those from intercranial pressure, suppression of urine, etc.

⁸ Pharmacol. Clinical and Expt., Translated by Hasley, Lippincott, 1914, p. 68.

adult all require to be saturated to the same ether tension in order to saturate their tissues up to the point of anesthesia.

Inquiry as to whether any deaths had occurred in cases in which the anesthetometer had been used disclosed only one, a patient at the Brigham Hospital operated on by Dr. Harvey Cushing. Dr. Walter M. Boothby, than whom no one could be more careful or more skilful, gave the anesthetic. The patient was a man with a very large cerebellar tumor pressing upon the medulla. He died from respiratory failure eight minutes after the beginning of the anesthesia. It is very clear, I think, that neither anesthetist, the anesthetic, nor the apparatus was responsible for the fatal result. It was due to the situation and size of the tumor.

I have never seen so smooth an etherization as one by Boothby with the anesthetometer for nearly two hours in one of Cushing's brain cases. The patient's breathing was inaudible throughout, in sharp contrast to the moderately stertorous breathing and coughing of another patient anesthetized elsewhere a few days later by the Roth-Dräger apparatus. The anesthetometer looks complicated, but its management is easily mastered and it then fulfills exactly the requirements just quoted. In fact, I think it is the only apparatus that does. It will be useful only to those who can afford the expense and who are constantly engaged in giving ether, especially in hospitals. It will not supplant the open drop method as a routine method to be used by the great majority. The very accuracy of the apparatus is a temptation to place too implicit reliance upon it, forgetful of the fact that the reaction of the patient and the disease cannot be accurately predicted.

EVERY CASE OF ANESTHESIA IRRESPECTIVE OF THE METHOD EMPLOYED REQUIRES UNREMITTING WATCHFULNESS FROM FIRST TO LAST.

Endotracheal and endopharyngeal insufflation are most valuable additions to our methods.*

Thoracic surgery, which for years had lagged behind all other departments of regional surgery, has suddenly broadened and improved by leaps and bounds, as a result first of the differential pressure chambers and later of insufflation methods, so that now all the organs in the chest are freely accessible. One important note of caution sounded by Cotton and Boothby¹⁰ I must repeat and loudly,—there must always be provided a safety valve to prevent excessive pressure and serious damage to the lung and the right heart.

What of the future? New anesthetics and improvements in our present methods, possibly even the discovery of the ideal anesthetic, will give us, I hope, a new, a safe and an agreeable

* The hybrid Latin and Greek terms "intra-tracheal," "intra-pharyngeal," etc., should be discarded for "endotracheal," "endopharyngeal," etc., derived wholly from Greek. Trachea, pharynx, etc., are not Latin words, but simply Greek terms transferred in Latin as we have transferred men, chauffeur, etc., into English. Imagine our writing "intra-carditis" or "intra-metrum"!

¹⁰ BOSTON MED. AND SURG. JOUR., March 28, 1912, p. 486.

anesthetic ere the centenary of anesthesia occurs on October 16, 1946.

Finally: In glorious, yea inspiring, contrast to the work of destruction promoted by other departments of Science, as shown in the present horrible war, is the blessed work of our Guild. In war as in peace, winning victory after victory over disease and death, we devote all our knowledge, skill, and ingenuity, century after century, to the solace and service of Humanity.

Original Articles.

PREGNANCY AND DIABETES MELLITUS.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

[From the Department of Theory and Practice, Harvard Medical School.]

A SMALL quantity of sugar in the urine during pregnancy is so common an occurrence as to attract comparatively little attention, and the frequency with which it is met probably depends upon how often it is sought. As a rule in such cases the sugar permanently disappears soon after confinement, although it may recur with succeeding pregnancies, and ultimately a severe form of diabetes may develop. With our present knowledge it is quite possible that such an outcome could be prevented by active treatment of the glycosuria from the very start.

The gloomy outlook for pregnant women showing large quantities of sugar became somewhat modified when it was recognized that these cases could be divided into two groups, based on the appearance of sugar before or after the pregnancy began. If pregnancy occurred in diabetic patients the outlook was considered far more serious than when diabetes first appeared during pregnancy. A somewhat more hopeful view of the whole situation was taken by Eshner (*American Journal of Medical Sciences*, 1907, Vol. 134, p. 375) and by Stengel (*Penn. Med. Journal* 1907-8, Vol. 11, p. 960), and still more recently by Neuman (*Ztsch. für ärztl. Fortbildung*, 1913, Vol. 10, p. 367), who reported six successful cases.

The experiments of Carlson and Günzberg (*American Journal Physiology*, 1914, Vol. 36, p. 217) are interesting rather than encouraging. Whereas total extirpation of the pancreas in non-pregnant dogs results promptly in the onset of pancreatic diabetes, complete pancreatectomy in pregnant bitches near term is not followed by hyperglycaemia and glycosuria as long as the fetuses are alive and the placental connections are not severed. At the onset of labor sugar begins to rise and characteristic

pancreatic diabetes is established on the completion of the delivery.

It is not surprising that so little progress has been made in the treatment of pregnant women with diabetes, because progress in the treatment of uncomplicated diabetes has been slow. However, the introduction of the therapeutic methods of Naunyn and von Noorden, who incorporated in their own the best of former modes of treatment, brought about improvement, and pregnant patients with sugar in the urine have now been subjected to the same kind of rational treatment which is employed with considerable success in ordinary cases of diabetes, and of course these methods have been greatly improved of late by Allen's rational development of Guelpa's work. But it is only fair to say that the general practitioner still has a horror at the discovery of a considerable quantity of sugar in the urine during pregnancy. For this reason, I shall record in detail Case No. 812, in which diabetes of moderate severity occurring during pregnancy was successfully treated, and I shall refer to another case (Case No. 307) seen in consultation with Dr. J. G. W. Knowlton, and an unusual case (Case No. 106) seen many years ago with Dr. F. W. Taylor, which he then treated most carefully according to the method of treatment then generally employed. In addition, I can report two severe cases (Cases Nos. 608 and 671) in young women, which were unsuccessful but might have progressed more favorably, and another case (Case No. 604), which was not severe, but was neglected and died with uremic complications. Finally, there is Case No. 854, alive, but with one unsuccessful pregnancy. Among these severer cases there were ten pregnancies and three children who are alive and well. In the same connection, a group of seven cases of pregnancy, in two of which (Cases Nos. 698 and 318) small quantities of sugar were found before conception took place, but in all of which sugar was moderate throughout, will be summarized. Among these cases there are eleven pregnancies and nine children are well at present. Such a record does not appear on the whole encouraging, but a study of the case histories leads to quite the opposite conclusion.

DIABETES.

Moderate or Severe.		Mild.
Nos.	S12	Nos.
307		256
106		732
608		712
671		698
604		318
854		438
		788

CASE No. S12, a physician's wife, aged 31 years, first seen December 29, 1914. The examination of the urine showed a slightly acid reaction, specific gravity 1038, no albumen, sugar 6.4%, no diacetic acid. There was no family history of diabetes; the patient had had measles, mumps, whooping cough,

and a rather peculiar case of typhoid. She was married at 21, and one year later had a stillborn child. In June, 1914, she became pregnant. Shortly afterwards her husband was called away from home. Upon his return in December, 1914, during the sixth month of pregnancy, sugar was found in the urine, but it was impossible to determine when it first appeared.

The patient felt well except for slight dyspnea, presumably due to her condition; polydipsia and moderate polyuria existed, but the appetite was decreased rather than increased; the bowels were constipated. Physical examination: the highest weight was 179, and the present weight 169 pounds; normal pupillary and patellar reflexes; heart normal; pulse 100; blood pressure 130; considerable oedema of the lower extremities, especially the right leg, and an abdomen consistent with a pregnancy of six months.

The ease appeared to me most favorable to attempt to carry through to term. The patient had previously been fat, and this spoke for a mild character of the disease. The polyuria was not great, although the per cent. of sugar was high. Furthermore, the patient was a doctor's wife. Both she and her husband thoroughly appreciated the situation, each had a cheerful temperament and instantly showed that they would follow directions. I was especially encouraged to allow the pregnancy to go on because of many favorable results with even severe diabetic patients undergoing major surgical operations. It was agreed that the patient should enter the New England Deaconess Hospital and remain there until danger was over or until confinement occurred.

The obstetrical side of the case was placed in the hands of Dr. J. C. Hubbard, who wrote me on January 7, 1915, as follows: "It seems to me that the problem offered by this ease is one to be solved by you. Obstetrically she is in excellent condition and there is no reason why she should not go through her confinement all right. I feel that I am not qualified to express an opinion about how much the presence of sugar complicates the situation. From my point of view, however, one must remember this,—that should it seem advisable to you to end the pregnancy now, the difficulty in starting uterine contractions and bringing on labor might put her through almost as much as a delivery at full term, either normal or hurried as much as possible."

During the week intervening between the first visit and the entrance of the patient to the hospital, no alteration in the diet was made, and from the accompanying chart it will be seen that the percent of sugar underwent no change.

Following entrance, the carbohydrate in the diet was gradually decreased from approximately 130 grams to 45 grams and the patient was allowed a very moderate quantity of protein and fat. Sugar then disappeared, but the diacetic acid rose to three plus and the ammonia, which at entrance was 1.3 grams in 24 hours, rose to 3.0 grams. With 8.0

grams of sodium bicarbonate and a slight increase in the carbohydrate, the ammonia fell to normal, where it remained until just after confinement. The sodium bicarbonate was eventually omitted. The tolerance for carbohydrate rose to 100 grams. The protein was kept in the neighborhood of from 75 to 100 grams—a little over 1 gram per kilogram body weight.

When it was seen that the acidosis did not wholly disappear upon this diet, the total quantity of food, which was largely in the form of fat, was decreased to such an extent that the patient was kept from gaining weight. In other words, when one considers the co-existent pregnancy, the patient was kept upon an undernutrition diet.

The weight at the time of confinement, March 24, 1915, was 156 $\frac{1}{2}$ pounds, as compared with 157 $\frac{3}{4}$ pounds at the sixth month. During the last three months of pregnancy the patient was in as good health as any normal pregnant woman. She had the freedom of the hospital, took daily walks, and by her cheerful temperament contributed much to the happiness of other diabetic patients with whom she was associated. As I had lost no case of diabetes in this hospital since August 29, 1914, she gained confidence in the manner of treatment.

The blood sugar on February 13, 1915, after dinner, amounted to 0.25%. The urine upon this day showed a non-quantitatable trace of sugar by the Benedict test, and there was a trace of diacetic acid. The carbohydrate ingested was 110 grams. On February 18, 1915, fasting, but with the same quantity of carbohydrate in the diet, the blood sugar was 0.16%. The urine still showed a trace of non-quantitatable sugar, and the diacetic acid persisted.

The method of delivery was carefully considered by Dr. Hubbard, who finally advised a Caesarean section, as set forth in his letter of February 8, 1915: "One more word about the method of delivering this patient. From my point of view it would seem desirable to have the labor put her through the least possible strain. It is not at all probable, I imagine, that she will have any more children, therefore the delivery should take the least possible chance with the baby. A Caesarean fulfills both these requirements. It saves the woman all muscular exertion. She gets through with less ether, and it is the easiest possible way for the baby, for there is no risk of twisted cord, which may occur in even the most easy vaginal delivery. A Caesarean would be done on a definite date. Would such a definite time be of any advantage to you in the way of dieting her in preparation? The time for the beginning of labor normally would, of course, be far from definite. You see I favor a Caesarean. If you should agree, I should like to have an opportunity of talking with her and explaining the necessity for suggesting such a delivery." The advice was accepted by the patient and the Caesarean was performed on March 24, 1915, the approximate normal date for confinement. In my absence immediately prior to delivery, as well as for the next few days, the patient was under the care of Dr. F. Gorham Brigham, to whom I am much indebted.

CASE NO. S12.

Date.	Diacetic Acid.	Nitrogen.	Ammonia.	SUGAR.	Total Grams.	Carbohydrate Grams.	Carbohydrate Balance, Grams.	Blood Sugar.	NaHCO ₃ , Grams.	Mother, Lbs.	WEIGHT, Child Lbs.
1914 Dec. 20	0			6.4					0		
1915 Jan. 5	+			6.4					0		157 3/4
5-6	+			1.3	2.4	31	120	+ 90	0		
6-7	+				3.0	40	130	+ 90	0		
7-8	sl.	+			1.4	20	120	+100	0		
8-9	+++			0.5	0.4 (levo.)	tr.	30	+ 30	0		
9-10						0	45	+ 45	s		
10-11	+++					0	45	+ 45	s		
11-12	+++			3.0	0.4 (levo.)	0	45	+ 45	s		
12-13	+++				0.0	0	40	+ 40	s		
13-14	+++				0.4 (levo.)	0	55	+ 55			160 1/4
14-15	++++			2.2	0.2 (levo.)	0	65	+ 65	12		
15-16	++++					0	70	+ 70	12		
16-17	++++					0	75	+ 75	12		
17-18	+++				0.6	0	85	+ 85	s		
18-19	+++					0	80	+ 80	s		
19-20					0.4 (levo.)	—	85	+ 85	4		
20-21	+			1.1	0.2 (levo.)	0	90	+ 90	2		
21-22	++					0	90±	+ 90	2		
22-23	++					0	95	+ 95	2		
23-24	++				0.2 (levo.)	0	100	+100	2		
24-25	++				0.0	0	100	+100	2		157 1/4
25-26	+				0.2 (levo.)	0	100	+100	2		156 1/8
26-27	+				0.2 (levo.)	0	100	+100	2		
27-28	++					0	100	+100	2		
28-29	++					0	100	+100	2		
29-30	+				0.4 (levo.)	0	100	+100	2		
30-31	+++				0.2 (levo.)	0	100	+100	2		
31-1	++				0.0	0	100	+100	2		
Feb. 1-2	++				0.2 (levo.)	0	100	+100	2		
2-3	0				0.0	0	100	+100	2		
5-6	tr.	10.6			+	0	110	+110	0		
									After Dinner		
13-14	tr.								0.25%	0	157
15-16	tr.	9.8	1.3	tr. 0.6 ferm. tr.	— 7	110	+110		0		
									Fasting		
18-19	tr.				+	0	110	—	0.16%	0	
23-24	+			1.6	0.2	—	110	—	0		
27-28	tr.				0.4	8	144	+135	0		
Mar. 3-4	tr.				0.3 ferm.	4	140	—	0		
4-5	tr.			0.6	0.0	0			0		
8-9	tr.			1.0	0.0	—			0		
18-19	0	12.7	1.0	0.0	0	0			0		157 3/4
19-20	st. +	12.4		0.2 (levo.)	0				0		
20-21	st. +	12.6		0.2 (levo.)	0				0		
21-22	st. +	10.9		0.0	0				0		
22-23	st. +	12.0		0.2 (levo.)	0				0		
23-24	0	11.3	0.9	0.0 (levo.)	0	130	+130	0			
									Delivery		8
24-25	+++	8.8	0.8	tr.	0	5	+ 5	0			
25-26	+++	14.1	2.2	0.6 (levo.)	3.0	25	+ 22	0			
26-27	++++	8.7	1.8	0.8 (levo.)	0	0	0		10		
27-28	++	7.4	2.1	1.2 (levo.)	1	30	+ 29	2			
28-29	++	12.3	1.5	0.0	0	60	+ 60	1			
29-30	+	13.5	1.1	0.0	0	70	+ 70	0			
30-31	++	14.3	1.9	0.0	0	70	+ 70	0			
31-1	+	13.8	1.1	0.0	0	85	+ 85	0			
April 1-2	+			0.0	0	85	+ 85	0			
7-8	+++			1.1	0.2 (levo.)	0	82	+ 82	0		
8-9	+			0.95	0.0	0	77	+ 77	Fasting	0	
11-12	0			v. sl.	+ 0	82	+ 82	0.20%	0		
22	+			v. sl.	+	0					
May 20	0			0.0	0				131 1/2		7 1/2
June 4	0			0.0	0				130 1/2		9 1/2
18	0			0.0	0				128 3/4		10 1/2
July 8	0			0.0	0				129		11 1/4
									126		11 3/4

The reaction of the urine was acid throughout. Albumen at no time exceeded the slightest possible trace, and casts were never present in the sediment except just after delivery.

The urine for the 24 hours preceding the operation was as follows: 1710 c.c., specific gravity 1012, acid, slightest possible trace albumen, nitrogen 11.3 grams, ammonia 0.9 grams, no sugar. In the sediment there were no casts or pus and only an occasional red blood corpuscle. The diet for the same day contained about 120 grams of carbohydrate, and was as follows:

Breakfast. Bacon, 2 eggs, 1 orange, 30 grams bread, 15 grams oatmeal, 120 c.c. milk.
Dinner. 90 grams roast beef, carrots and peas, 120 c.c. milk, coffee jelly (made without sugar) 15 grams nuts, 1 apple.
Supper. 1 egg, asparagus, 15 grams oatmeal, 120 c.c. milk, 15 grams toast, 1/2 orange, 60 grams potato.

The blood pressure, which was 130 on December 29, 1914, had remained essentially the same, and was 125 on the day before delivery.

It had been previously agreed that if acidosis developed prior to the termination of labor a Caesarean section would be performed under local anesthesia. Fortunately, this was not necessary.

During the 24 hours following delivery a trace of sugar appeared in the urine, but the ammonia remained at 0.8 grams and the nitrogen at 8.8 grams. Diacetic acid was present, and the sediment showed numerous brown granular and a few hyaline casts. Upon the second day there was 0.2% of sugar by the Benedict test, but the urine was 0.6% levo-rotary on account of the acidosis, which was proven by the presence of 2.2 grams of ammonia and a marked diacetic acid reaction. The sediment showed an occasional hyaline cast. Upon the third day the urine showed only a trace of sugar, but was 0.8% levo-rotary, the ammonia was 1.8 grams and the nitrogen 8.7 grams. Upon the fourth day it was essentially the same; there were no casts. Thereafter, the sugar disappeared, and up to October, 1915, has never returned in a quantitative amount.

Upon the day of delivery and the two following days the patient was practically fasted on account of the return of sugar and diacetic acid. The diet was then gradually increased, beginning first with a small amount of carbohydrate and protein, and the fat was limited to approximately 50 grams. Within a week the diet had been brought back nearly to what it was prior to delivery.

The baby was normal in every way. The weight at birth was eight pounds, and he steadily gained, reaching 13 pounds on July 30. It is frequently maintained that diabetic patients cannot nurse their babies, or that they ought not to nurse them. Nursing was easily maintained in this case until the middle of June, when the milk rather abruptly ceased. The patient was at that time in New Hampshire, and other circumstances may have played a factor to bring this about. The weights of mother and baby are recorded on the chart. The weight of the patient six days before delivery was 156 1/2 pounds. On April 8, fifteen days after delivery, it was 130 1/2 pounds.

Nitrogenous equilibrium was evidently maintained during the weeks before and after confinement.

The blood sugar on April 11, fasting, was 0.2%, in contrast to 0.16% on February 18, 34 days before confinement.

CASE No. 307, aged 34, first seen December 15, 1909, in consultation with Dr. J. G. W. Knowlton. The family history was negative. The first pregnancy began in May, 1909, and sugar was first discovered six months later, when the urine of November 30, 1909, showed specific gravity 1045, acid, no albumen, sugar 1.7%. Polydipsia, polyphagia and polyuria were present. Possibly the explanation of the appearance of sugar may be attributed to the diet, which was rich in carbohydrates—cakes, jellies and candy. There were no digestive, respiratory or nervous symptoms, but dyspnoea was present on exertion and also insomnia, which was attributed to pains in the legs, although oedema was absent.

Physical examination showed normal pupillary and patellar reflexes, no oedema, pulse 100, blood pressure 130. Apex of heart in mammillary line with a systolic murmur at the base. The abdomen presented a normal appearance for six months pregnancy. The former highest weight was 124 pounds, but at the sixth month of pregnancy it was 155 1/4 pounds. The urine of December 15, 1909, showed specific gravity 1018, acid, no albumen, sugar 1.0% and diacetic acid slightly plus, no casts, pus or blood.

The patient was given the following diet: Strict diabetic diet, one and one-half pints milk, half a pint of cream, vegetables in the 5 and 10% carbohydrate groups freely, a tablespoonful of vegetables from the 15% group, one orange, one ounce of bread, two ounces of potato and two tablespoonfuls of oatmeal, or approximately 130 grams of carbohydrate.

On February 16, 1910, Dr. Knowlton reported that sugar disappeared on January 25, but was replaced by albumen and casts. The albumen increased to 0.3%. Anasarcina appeared the first of February. Labor commenced at 3 a.m., on February 7, 21 hours later high forceps were used, but the baby was born dead. Sugar disappeared following confinement. In May, 1915, I learned that the patient had been severely ill with diabetes during the preceding winter.

It is worthy of attention that this patient survived confinement, despite the appearance of marked anasarcina and 0.3% albumen. If Dr. Knowlton could be so successful at this period with such a case, it is obvious that with the advance in treatment of diabetes and nephritis during the last six years, still better results might be obtained. In the light of Case No. 812, reported above, it is possible that an early Caesarean section might have saved the child.

CASE No. 106, aged 39, was first seen on November 22, 1905, with Dr. F. W. Taylor, who reported the patient's last pregnancy in the BOSTON MEDICAL AND SURGICAL JOURNAL of March 2, 1899, Vol. 140, p. 205. The family history was negative. The patient was always well except for frequent micturition since childhood—a story frequently volunteered by diabetic patients—which became more marked at the age of 29. Married July, 1896, at the age of 30. Miscarriage the following September. The second pregnancy began in December of 1896, and

in June, 1897, 8.5% of sugar was found, which gradually decreased. On July 3, 1897, the urine was acid, specific gravity 1010, trace of albumen, no sugar. Labor began August 19, and the child was extracted with forceps; 13 years later this child was reported to be well-developed, vigorous and healthy. Two weeks after delivery the urine was again examined and found to contain sugar, which persisted. The patient was occasionally seen during subsequent years by Dr. Taylor and on March 13, 1905, the urine was found to contain 6.0% of sugar and no albumen. The weight of the patient was 108.

Pregnancy occurred for a third time in April, 1905, but this time the quantity of sugar was not as easily controlled as before. It is interesting that the patient was *fasted* one day by Dr. Taylor in his efforts to lower the sugar, and as a matter of fact it did decrease to 2.1%, but in August was 6.7%. In October, 1905, the sixth month of pregnancy, 5.8% of sugar was present. On November 20, the sugar had disappeared, but albumen had developed. Nausea was present and there was marked epigastric discomfort, so that the patient was accidentally fasted. Tenderness was present over the upper part of the uterus. The pupils were normal; there was no drowsiness or acetone odor; teeth fair; tongue slightly dry; heart and lungs normal; pulse regular, 104, with slightly increased tension. The uterus was well above the navel. It was decided to deliver the child at the very first sign of approaching coma, and three days later this was accomplished. Sugar remained absent from November 20 to 29. On November 27, two days after confinement, the nausea ceased and the patient began to eat. *It is interesting to note that accidentally starvation treatment was practised for a period of seven days.*

In December the urine showed 80 grams of sugar in the 24 hours, and pulmonary tuberculosis had developed. The percent of sugar, however, fell to between 1.0 and 3.0%, and in January was less than 1.0%, disappearing on January 15 entirely. On January 16, 1906, the patient died.

In Dr. Taylor's opinion, the diabetes developed during the second pregnancy. The favorable result of the second pregnancy despite the large quantity of sugar in the urine, even under therapeutic methods far inferior to those of today, encourages one in the treatment of other similar cases. The employment of starvation by Dr. Taylor in 1905 showed how carefully he treated the case, and the fact that the patient survived a third confinement, although extremely ill, may have some connection with the artificial seven days' fast which her nausea caused. Finally, the disappearance of sugar from the urine when tuberculosis appeared, is in accordance with what often happens, and is recorded by me in the *American Journal of Medical Sciences* (see Case No. 344, Vol. 4, p. 474) and still more in detail in *Carnegie Publication*, No. 176, p. 55, 1912, Case R. Benedict and Joslin, *Metabolism in Severe Diabetes*.

CASE No. 608, age 28, first seen April 22, 1913. The father has diabetes. One brother is deaf and dumb. Mother and one sister well. Nothing of note was recorded in the past history. In July, 1912, sugar was found, accompanied by polydipsia

and polyuria. The weight in August, 1912, was 174. Despite her knowledge of the existing diabetes, the patient married February 8, 1913, and promptly became pregnant. At the time of observation the quantity of urine was approximately 3000 c.c., and a single specimen on April 23, showed specific gravity 1030, very slight trace of albumen, 2.8% sugar, diacetic acid + + +, no casts, pus or blood. On April 25, the urine amounted to 3000 c.c., acid, specific gravity 1026, slightest possible trace of albumen, sugar 3.0%, diacetic acid + + +. When first seen the patient was drowsy, short of breath, and greatly annoyed by a parched tongue, thirst, constipation and bleeding hemorrhoids. She was weak and tremulous, all over. Pupils reacted and heart and lungs were normal; pulse 96 and blood pressure 115. The abdomen was negative save for tenderness in the right iliac fossa; the uterus was not felt.

It developed that soon after the discovery of the disease in July, 1912, the patient was put under dietetic treatment by a physician experienced in diabetes, but that recently she had given up treatment and placed herself under the care of a clairvoyant. The patient died in coma shortly after being seen. This case is recorded because it probably is typical of many others, and in part accounts for the gloomy prognosis usually held for pregnant diabetic patients.

CASE No. 671, age 25 years, first seen November 25, 1913, was a Jewish woman, who probably developed diabetes in April, 1912, although unrecognized by herself. She was married in June, 1912, and the disease was discovered in August, 1912. At the first visit the urine contained 7.2% of sugar. She was advised not to become pregnant, but pregnancy did take place in January, 1914. The urine did not become sugar-free, and an abortion was successfully performed by Dr. Friedman in March, 1914. I later learned that she again became pregnant and in October, 1914, committed suicide.

CASE No. 604 was seen by me once in consultation on April 14, 1913. The patient and baby were lost, but there is considerable reason to believe that they might have been saved. The age of the patient was 28 years. Her mother died of diabetic gangrene at 40, one sister became insane the first week of April, 1913, having shown sugar two years before; one sister died of Bright's disease with mental symptoms, and one sister was fat and well. The past history of the patient showed measles, mumps, whooping cough, chicken pox. She had been married eight years. Present illness: On February 22, 1909, sugar was found in the urine, but with dieting disappeared. The patient was free from sugar at the time of the first visit, as she had also been in the previous December. She became pregnant for the first time in February, 1913. On account of the family history of diabetes, which in my experience usually implies a mild type of the disease, on account of the absence of sugar and on account of the nervous upset which at that time the interruption of pregnancy would have caused, both because of her sister's case and her own first pregnancy, I advised that the patient be kept under close observation and the pregnancy allowed to continue. As the family physician was to be away some months, definite directions were given to the patient to report to a specified physician at short intervals. Instead,

CASE NO. 604.

Date.	Vol.	Specific Gravity.	Reaction.	Albumen.	Diacetic Acid.	Ammonia.	Total Sugar in Urine, Grams.	Carbohydrate in Diet, Grams.
1913								
Aug. 26.....	2000	1040	Acid	0	sl. 0		76	
Sept. 2.....	—	1023	"	s. p. tr.	+++		0.4%	
5.....	1750	1029	"	s. p. tr.	++	2.4	14	
9.....	1500	1011	"	0	+		0	
12.....	—	1029	"	sl. tr.	++		0.1%	60
16.....	1250	1023	"	sl. tr.	0		0	80
20.....	—	1023	"	Esb. 0.05%	0		0	
23.....	1500	1020	"	" 0.1%	0		0	65
26.....	Single Spec.	1023	"	" 0.3%	sl. +		0	
27.....	1000	1022	"	" 0.4%	0		1	

the patient did not report, June 10, and June 18, the urine, which was examined by the physician and his assistant who were to take immediate charge of the case, was found sugar-free. The husband, however, took another specimen to an osteopath, who said that he found sugar, and for weeks the patient was placed under his observation. Upon the return of the original family physician in August, during the sixth month of pregnancy, 3.8% of sugar was found and a slight trace of diacetic acid, and soon albumen developed. In the seventh month, September 27, on account of urgent symptoms, the pregnancy was terminated, the patient dying a few hours later in coma—probably uremic—and the baby was lost. Ether was used. Shortly after the husband committed suicide on her grave, but it is only fair to record that a previous attempt some years before with chloroform failed. The accompanying chart shows the later course of the disease.

CASE No. 854, age 33, first seen April 15, 1915. The onset of diabetes was in 1911, and sugar was discovered in December of that year. An uncle died of diabetes, father of cardiac disease, mother of paralysis, two brothers and one sister well, six brothers and sisters of diphtheria, one sister of appendicitis. In August, 1912, the patient was delivered of a child, now well. On December 13, 1914, she had a stillborn child at term, but had a hard confinement.

The patient said she was sugar-free during the first month of pregnancy, in April, 1914. In April, 1915, three examinations of the urine were made by me, and showed sugar varying between 0.4 and 0.6%. The specific gravity varied between 1013 and 1017, the slightest possible trace of albumen was present, and no diacetic acid. Evidently the case was mild in type throughout. A partial explanation of this was that the patient's highest weight was 173. It had fallen to 149 in April, 1914. Physical examination showed normal reflexes, no acetone odor, teeth normal, pulse 112, blood pressure 130, a systolic murmur at the apex of the heart, lungs normal and nothing abnormal felt in abdomen.

The remaining seven cases represent a milder type of diabetes. Too much sugar, however, was present in the urine to allow one to consider them simply transitory glycosurias, and furthermore, in two of the cases sugar was demonstrated before pregnancy occurred. It is not strange that four of the cases occurred in physicians' families.

CASE No. 256, age 27, first seen May 29, 1909. Family history negative. Measles, scarlet fever, pos-

sible chorea and considerable anaemia at 23. Jaundice at 24. Married at 25. One healthy child. The second pregnancy began in November, 1908, but sugar was not discovered until May 26, when the patient had an attack of vertigo with black spots before the eyes, lasting for ten minutes. The urine then showed specific gravity 1038, acid, no albumen, sugar present. The diet was promptly changed, and when I first saw the patient on May 28, two days later, the 24 hour urine was 1420 c.c., specific gravity 1027, slightest possible trace of albumen, no diacetic acid, and 0.8% of sugar, or 11 grams in the 24 hours. The sediment showed no pus, casts or blood. The diet of the patient was gradually changed from one containing 160 grams of carbohydrate to one containing about 125 grams, at which it remained until after confinement. Sugar was constantly present until confinement on August 20, when the patient was successfully delivered of a boy. September 18, the sugar had disappeared, and from that time on remained absent and has continued so until the present time. A third pregnancy occurred one year later.

The physical examination of June 7, 1909, showed nothing abnormal. The weight of the patient before marriage was 112, and while carrying the first baby was 150; during the sixth month of the second pregnancy it was 140. The high specific gravity in May,—1038—shows that the per cent. of sugar at this time also must have been high, and it is fair to infer that if this patient had not been promptly treated the disease might have taken a serious turn. As it is, one likes to believe that it illustrates the efficacy of prompt, early treatment.

CASE No. 732 showed sugar in the urine during the sixth month of pregnancy on September 3, 1903. Diacetic acid was absent. Sugar was again found on September 5, and amounted to 0.1%. On September 20 and October 5 it was 0.5% by the fermentation test. It was 0.4% on November 9, and 0.7% on December 4. At no time did diacetic acid appear, and albumen did not exceed an extremely slight trace. The delivery, on December 26, 1903, was uneventful, and on October 24, 1904, the urine was free from sugar, as it also was on February 16, 1906, and March 19, 1906. Patient and child are well today, but no subsequent pregnancy has occurred.

CASE No. 712, first seen March 19, 1914. The mother and sister died of apoplexy; father, 3 brothers and 7 sisters and one child 7 years old are well. Past history: Muscular rheumatism and mumps. Pregnancy began October 27, 1913. Sugar was first

CASE NO. 712.

(The urine was acid throughout and the albumen never exceeded a very slight trace.)

Date.	Diacetic Acid.	%	SUGAR.	Carbohydrate in Diet. Grams.	Weight. Lbs.
			Total Grams.		
1914	—	1.5	18		
March 9.....	—	0.5	9		120½
19.....	0	0.8	7		
April	sl. +	0.8	12		
2.....	0	0.8	9		121½
9.....	0	1.0	21		122
18.....	0	2.6	12		125
23.....	+	1.6	15		125½
May	—	0.6	8	120	
8.....	+	0.6	11	75	
16.....	0	0.8	8	110	
23.....	0	1.6	15	115	
—	1.0	10		125¼	
June	—	1.0	6		
5.....	0	0.6	7		
11.....	0	0.2	2		
19.....	0	0.6	0		
25.....	0	0.2	2		
July	—	0.2	2		
3.....	0	0.2	2	125-150	
11.....	0	tr.	0		
18.....	0	tr.	0		
Aug.	—	0.0	0		
31.....	0	0.0	0		
Oct.	—	0.0	0		
Nov.	—	0.0	0		
25.....	0	0.0	0		
1915	—	0	0		
Jan. 15.....	0	tr.	0		
March 9.....	0	tr.	0		
April 22.....	0	tr.	0		

discovered March 9, 1914, and there was no evidence that it had been present for a long time. The urine showed 1200 c.c., specific gravity 1030, no albumen, sugar 1.5%, no acetone, no casts, an occasional red blood corpuscle. The urine had not been examined since the previous confinement 7 years before, when it was normal. Subsequent examinations are given on the following chart. Present illness: The patient complained of no symptoms save those of pregnancy. Physical examination: Highest weight 128, usual weight 125, and weight on March 19, 1914, 120. Patient rather thin, and somewhat excited. Pupils equal and react, no acetone odor, teeth normal, knee jerks normal, pulse 112, blood pressure 130, apex of the heart in mammillary line with systolic murmur at base and apex, liver extending a finger's breadth below the costal margin.

The diet of the patient was restricted to between 100 and 125 grams of carbohydrate. She was successfully confined at term. Examinations of the urine were made in August, October and November of 1914, and January, March and April of 1915, but at no time had sugar returned in quantitative amount.

CASE No. 698, age 36, became pregnant in June, 1913. Father, mother and 2 brothers are well. Past history showed appendicitis at 18, ill for 5 months. One child well. In 1905 marked gastric hyperacidity, but there was no sugar in a 24-hour specimen of urine. The patient, however, was said to have shown sugar in the urine on various occasions in 1911. On December 4, 1913, the urine showed specific gravity 1018, acid, no albumen, no diacetic acid and no sugar. On January 14, examination showed 0.6% of sugar. Subsequent analyses are recorded on the chart. The patient went to term and was successfully confined.

This case and the next one to be reported are interesting in that sugar was demonstrated in the urine before pregnancy commenced, and yet the course of the pregnancy was uneventful and the diabetes did not increase in severity. What would have happened had the diet not been restricted is problematical. Like former patients, this patient was kept on a diet containing approximately 125 grams of carbohydrate.

CASE NO. 698.

Date.	Volume.	C. C.	Specific Gravity.	Albumen.	Diacetic Acid.	%	SUGAR.	Grams.
1905								
Jan. 17.....	950		1031				0.0	0
1913								
Dec. 4.....			1018	0	0	0.0	0	
1914								
Jan. 14.....			1031	0	0	0.6	?	
30.....	1020		1027	s. p. tr.	0	0.6	6	
Feb. 7.....	990		1023	s. p. tr.	0	1.0	9	
16.....	990		1030	v. sl. tr.	sl. +	0.4	4	
24.....	600		1027	v. sl. tr.	0	0.6	4	
Mar. 3.....	420		1031	trace	sl. +	0.4	2	
14.....	900		1022	s. p. t.	sl. +	0.0	0	
20.....	960		1026	sl. tr.	0	0.0	0	
26.....			1026	v. sl. tr.	0	0.2	?	
31.....			1036	sl. tr.	0	0.0	0	

CASE No. 318, age 27, first seen February 24, 1910. Past history negative. In March, 1908, while teaching school and nervously tired out, sugar was found in the urine. At this time the patient was taking much carbohydrate at night before retiring with the hope of gaining weight; she was previously unaccustomed to sweets. After six to seven months upon a diabetic diet the sugar disappeared. She was married in February, 1909. At the time of the first visit she was not pregnant, but the urine contained 0.4% of sugar. The full analysis was as follows: 520 c.c., specific gravity 1028, acid, very slight trace albumen, 0.4% sugar, no diacetic acid; in the sediment no casts or pus, rare normal blood cell. The patient eventually became pregnant, but sugar was absent throughout, although it returned 2 weeks after confinement in considerable quantity, and up to 1912, the last record amounting to 0.2%. She has since had another child and sugar returned during pregnancy, but disappeared following confinement. She keeps sugar-free, but her physician is closely following her diet.

CASE No. 438, age 25, is sharply in contrast to the one just reported, for instead of sugar disappearing during the pregnancy, it appeared during three successive pregnancies, and was absent in the intervals. I am indebted to Dr. Franklin S. Newell for some of the data. Sugar appeared in the first pregnancy, but ceased immediately after confinement. In the summer of 1910 it occurred, but a miscarriage took place. The urinary analysis of August 29, 1911, showed acid reaction, specific gravity 1019, slightest possible trace of albumen, sugar 0.6%, no diacetic acid; the urine of September 14, 1911, showed 2000 c.c., acid, specific gravity 1020, slightest possible trace of albumen, sugar 1.0%, no diacetic acid. The nitrogen was 12.6 grams,—no casts, pus or blood. In March, 1913, the patient considered herself pregnant, but the urine at that time and at subsequent examinations soon after failed to show sugar, and time showed that pregnancy did not exist! Pregnancy did occur in December, 1913, and a trace of sugar showed throughout, only to disappear after confinement in September, 1914.

Thus at three pregnancies sugar has been present, but in the intervals sugar has been absent. The absence of sugar at a time when the patient considered herself pregnant but was mistaken is also interesting.

Foster (Nellis B. Foster, Diabetes Mellitus, 1915, p. 99) records a case similar to the above, in which "there had been a pronounced glycosuria during two pregnancies which had entirely subsided after the birth of each child so that there was no sugar in the urine and no dietary restriction was employed. During the third pregnancy there was observed not only glycosuria, but also a moderate increase of thirst, and following the termination of this pregnancy the sugar secretion and the symptoms persisted."

CASE No. 788, age 35, first seen November 9, 1914. Father had diabetes, but at the age of 73 is considered well. Mother died of diabetes and heart disease. Two brothers are well, but a sister has malignant disease and sugar is also present in the urine. Another sister is well. Past history: Patient

has eaten a considerable quantity of sweet food. A mild pneumonia at 32; bronchitis and tonsillitis several times. During the first pregnancy, at the age of 33, she showed traces of sugar at eight and one-half months, even though she dieted for diabetes. On account of threatened symptoms delivery was brought about at eight and one-half months, but the baby lived only 24 hours. Following confinement mental symptoms developed, and the patient was at a sanatorium for nearly two months. At the end of this time the urine was free from sugar.

The patient again became pregnant in September, 1914. On November 9, 1914, the urine showed 0.4% of sugar, no diacetic acid, slightest possible trace of albumen, no pus, casts or blood. A trace of sugar was present two days later. The general appearance of the patient was excellent; pupils and knee jerks normal, pulse 92 and regular, blood pressure varying from 130 to 135, and at a second examination was 145. The area of the heart was normal, but there was a systolic murmur at the base and apex. Otherwise the physical examination was negative. On account of the severe mental symptoms at the first pregnancy, the persistent glycosuria, the elevated blood pressure and the marked hereditary tendency, it was considered best to terminate the pregnancy, which was done on November 17, 1914. Sugar was absent from the urine on February 3 and on April 10, 1915.

Out of the seven cases of moderate or severe diabetes associated with pregnancy, it is true that four are dead,—one by suicide (Case No. 671), one (Case No. 604) with uremic manifestations which can reasonably be ascribed to neglect, a third (Case No. 608) died in coma, pregnancy having developed after diabetes had existed for a year, but treatment of which was neglected, the patient later being under the care of a clairvoyant, and the fourth (Case No. 106) in which the patient successfully went through her first pregnancy in 1897 with a healthy child, but again was confined and the child lost in 1905, the patient dying two months later of pulmonary tuberculosis. But it is also true that of the three remaining cases one is in exceptionally good health, free from sugar, and has a normal child six months after delivery; that another is in a tolerable condition, having been pregnant three times but with only one child now living; and that the remaining case (Case No. 307) is alive, although severely ill with diabetes six years after confinement.

All of the seven cases with moderate quantities of sugar in the urine are well.

On the other hand, it must be remembered that of the seven severe cases only one, Case No. 812, occurred at a time during which modern treatment could be carried out. It is a fair inference to draw from the other cases that pregnancy in this instance would not have progressed so favorably had the disease developed when knowledge of treatment was less advanced. A study of this case makes it also a fair inference that Cases Nos. 608 and 604, under careful treatment, would not have terminated fatally. I do not think that Case No. 621 would have

been successful under any condition, because of the mental state of the patient. Of the four cases which died, three were known to have sugar in the urine before pregnancy took place, but I personally do not believe that this fact had much to do with the unfavorable course of the disease, although I would agree to the statement that pregnancy occurring in diabetes is far more serious than diabetes occurring in pregnancy. It must be acknowledged, however, that the diabetes appeared in Case No. 106 after pregnancy began, as well as in the other three severe cases which survived, and that Case No. 106 lived eight years after her first pregnancy.

It is important to note that the seven milder cases presented quantities of sugar which were considerable in amount; that four of these cases were in medical families and so the disease presumably was discovered early, and that the favorable course of the disease with them can justly be explained by their constant supervision. Of these seven cases, two showed sugar before pregnancy, but this apparently did not exert an unfavorable influence.

The favorable outcome of Case No. 812 encourages one to believe that even if a patient had a somewhat severer type of diabetes, it could be successfully combated. Several expedients which could have been tried were not necessary. For example, fasting was not employed; at confinement instead of ether, gas and oxygen could have been used, or the Caesarean section could have been performed with local anesthesia; and furthermore, the patient need not have gone to full term.

CONCLUSIONS.

From a study of these cases it would seem that the secret of success in the treatment of pregnant women with sugar in the urine is:

1. To have the patients under constant supervision throughout the course of the pregnancy and for some months after confinement. The cause of the death of Case No. 604 may well be attributed to the neglect of this precaution.

2. Treatment should follow exactly the same methods which are employed in the treatment of the usual case of diabetes.

3. Even when sugar appears to a slight extent in pregnant women, it should be carefully watched and controlled by diet.

4. The advantages of a Caesarean section should be borne in mind.

5. Whereas ether anesthesia may work well, it is probably not so safe as gas and oxygen. If ether should be used, as brief an anesthesia and as little ether as possible should be employed.

6. Finally, many statements occurring in the literature of pregnancy and diabetes must be revised. Pregnancy in diabetes does not demand immediate abortion, even if acidosis is present. If pregnant diabetic cases are suitably managed, they will very likely abort less frequently. It cannot yet be accepted as proven that pregnancy

aggravates a diabetes. It is quite possible that the reason for a patient with diabetes becoming worse during pregnancy is simply due to the ingestion of an unusual quantity of food. Reliable data upon the carbohydrate tolerance of diabetic patients before and after pregnancy are not available, although Maase (*Char. Ann.*, Vol. 35, p. 33) records a single such instance. Nursing is not contraindicated following confinement, for the diversion which it affords the patient may offset the extra demands thrown upon the metabolism. Too few data have been accumulated regarding the blood sugar of pregnant women to warrant conclusions. The same statement may be made about the alleged excessive weight of children of diabetic mothers. The next few years may show that pregnancy can take place in diabetic patients far more readily than has been supposed. It is certainly true that with the improvement in the treatment of diabetic patients, diabetic women will be less likely to avoid pregnancy.

SURGICAL SPECIALTIES IN HOSPITALS.*

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THE enormous advances which surgery has made during the last half century have made it inevitable that many men should interest themselves in some special branch or branches of surgical work, to the exclusion of others. This narrowing of one's field of activity is not to be condemned, provided it has taken place through a natural process of selection and has been based upon a proper knowledge and experience of the whole surgical field. The so-called specialties have not only made distinct places for themselves, but at the present time apparently are making these places more secure both in the minds of the profession and of the general public. Whether such specialties have sufficient reason for their existence, or whether they exist for the best interests of surgery and the surgical profession is not for our discussion here. They do exist and flourish. Let us consider them in their surgical relations, both from the hospital and from the medical school point of view.

A hospital is commonly said to have three great fields of usefulness,—the efficient cure of the sick; the proper use of its material for advancing the cause of science; and the teaching of doctors, students and nurses. For the efficient cure of the sick in any but small hospitals there must be some basis for a division of cases into groups, as one service of men and nurses cannot properly care for more than a certain number of cases—50 or 60. In making such divisions it would seem obvious that if the cases are grouped according to their kind, those caring for them, both doctors and nurses,

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will acquire an excellence of technical routine which will be both economical and efficient, and thus will be of the greatest advantage to both the hospital and the patient. This is so evident, that in many of the hospitals where such special departments of work are more or less frowned upon, the conditions arrange themselves to some extent automatically, and one finds a certain sort of patient being admitted to Dr. So-and-So's service because he is known to be especially interested and expert in the care of that sort of case, and is anxious to give all the time and skill he possesses to the study of it. So that from the patient's point of view it would seem as though such special departments are necessary in every hospital. The same may be said with relation to research work and other scientific use of surgical material. The special worker will evidently take more interest in the best and completest use of his material and will get the best results for his profession and for himself from such study.

Again, it seems to be the common opinion today that every good hospital should be a teaching hospital, and therefore that its organization must be based in some degree upon medical school needs. In the school, as in the hospital, the wide range of subject matter, to be properly administered, demands division of material; and in the school, much more than in the hospital, up to the present time, this division into departments pertains, because it has proved the obviously best solution of the teaching problem. But for the school's best interest, this same division into departments should maintain to a corresponding degree in the hospital because the best teaching demands such groupings of patients, just as the best hospital efficiency and economy demand it. So that theoretically it would seem to be at once for the best interest of patient, hospital and medical school that special services shall exist.

All very well, but where is this theory leading us? How far shall we go with it? Is the general surgeon to disappear? Are we to have specialists in all branches of surgery? Are hospital house-officers and nurses to be brought up as specialists from the start, with a practical hospital education in one line of work only? Are the members of our visiting staffs to be confined to a small field of work, or at all events to a much smaller field than meets with their inclinations and desires? Are the orthopedic men, the aurists, and the urologists, to be followed by many other special men, each lopping off a portion of the work formerly performed by the general surgeon? Obviously not, although it would seem almost as though this were so at the present moment. It is a hard problem and probably it is one which will gradually develop and settle itself, without much guiding from the profession. It would seem, in spite of all our theorizing about specialties in surgery, that the general surgical service must exist for many years to come and that the development of various spe-

cial departments in surgery must be a problem for the individual hospital concerned, both from its hospital and from its medical school aspects.

At the Boston City Hospital, where for many years special departments in surgery have been in little favor, an interesting experiment is being tried on lines suggested by Dr. George H. Monks. There had never been a genito-urinary service at the hospital. He suggested that such a service be organized, somewhat as follows: Every other genito-urinary case, male or female, is admitted to the 4th surgical service of twenty beds devoted exclusively to the care of urological cases. This leaves the other half of such cases to be distributed among the three other surgical services, so that these may not be deprived entirely of their genito-urinary cases. It is hoped that the development of the special service will attract enough extra patients of this sort to the hospital so that the special service will grow in size and in the quality of its cases, while at the same time the other services will maintain as many such cases as they had before. The service, so far as its visiting staff is concerned, is on a par with the other surgical services, and all members of the staff, in order of their seniority, are privileged to choose months of work on this, as well as on the other services; so that the men most interested in urological work may choose this service, and yet others less interested may also choose occasional work on this service if they so desire and in order of their seniority. The house-staff of two is appointed for six months—three months junior and three months house-surgeon. This short service is arranged with the hope of attracting superior men of previous surgical training, who desire experience in this special line of work and yet who feel that they cannot devote longer periods of time to it. So far this hope has been justified. The special service has general supervision, but not complete control of the urological room in the out-patient department, so that out-patient surgeons, in the order of their seniority, may choose months of work in this room if they desire, just as they have done always. This results, as in the service in the house, that the men most interested in and identified with urological work will naturally choose this out-patient service, so far as their rank entitles them to do so.

It will be seen at once, that while such an organization does not create an ideal special service, it does provide the hospital with an adequate urological service, from both the patient's and the hospital's point of view, and it does make a teaching unit which can utilize its material adequately for medical school purposes. It does this without conflict with other surgical services and it deprives no one on the staff of material which he desires to retain for his own purposes. This urological service has passed its first year of existence and it is steadily progressing in interest and value. May it not very possibly be the forerunner of similar services for other branches of surgical work?

OBSERVATIONS UPON THE ETIOLOGY AND TREATMENT OF HEART DISEASE.*

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THE relationship of the more important abnormalities of the heart beat to etiology and treatment has been studied in the cardiac patients seen at the Massachusetts General Hospital during the year August 1, 1914, to August 1, 1915.

Auricular fibrillation produces the most important disorder of cardiac rhythm—absolute irregularity, perpetual arrhythmia, or *delirium cordis*. It consists of an absolutely irregular ventricular response to a fibrillary activity of the auricular walls in the place of normal regular ventricular response following auricular contraction. It is indicative of a damaged myocardium. One hundred cases of auricular fibrillation were found in the wards and in the outpatient department of the hospital during the year.

Pulsus alternans, consisting of the alternation of strong and weak pulse beats either with normal rhythm or after premature beats, is the most important pulse index of myocardial exhaustion, much more significant than the *delirium cordis* of auricular fibrillation. One hundred patients with alternation of the pulse, with rates nearly all below one hundred per minute and none above 125, were seen in the wards and outpatient department of the hospital during the course of the year.

The present communication is chiefly concerned with the comparison, with regard to etiological factors; of these two series of cases with each other and with one hundred consecutive cases with heart disease and normal cardiac mechanism, i.e., normal rhythm without alternation, over the age of ten years seen at the hospital during the same year. I shall also discuss the etiology in seventeen cases of heart block of high grade made up of four cases of complete block, two of which had also lesions of the right branch of the bundle of His (as shown by electrocardiograms) and thirteen other patients with bundle

branch block. Of these thirteen cases three had also auricular fibrillation and seven had alternation of the pulse. Finally there will be considered seven cases of auricular flutter, which is an uncommon type of very rapid and abnormal auricular action with which heart block usually of the two-to-one grade is associated. Premature contractions (the *extrasystoles* of old) and paroxysmal tachycardia I shall not consider here partly because of their relative unimportance and partly because hospital statistics in such conditions are incomplete and hence misleading.

The present series of cases of alternation of the pulse is the largest which has been studied statistically; for comparison I have summarized the cases recorded by Gravier,⁵ 38 of his own and 50 collected from the literature. The fibrillation cases are numerous enough to compare satisfactorily with Lewis' 152 patients as tabulated in the second edition of his "Clinical Disorders of the Heart Beat"; the patients with auricular flutter add appreciably to the 53 cases collected by Ritchie¹² from his own clinic and from the literature; and finally the instances of heart block of the bundle branch type (14 with right branch involvement and 1 with left) may be studied with reference to the series of 22 discussed by Carter.² A general comparison may be made as to etiological type with the six hundred patients recently analyzed by Cabot.¹

Sex and age. Tables I and 2 show the sex and ages of the patients of the present series and also of the cases recorded by Gravier,⁵ Lewis,³ Carter,² and Ritchie¹² for comparison.

TABLE I. SEX.

	Male	Female
Cardiac patients with normal mechanism	66	34
Patients with auricular fibrillation	56	44
Patients with alternation of the pulse	68	32
Patients with heart block	14 (82%)	3 (18%)
Patients with auricular flutter	5 (71%)	2 (29%)
Gravier's alternation series (88 cases)	64%	36%
Lewis' auricular fibrillation series	60%	40%
Lewis' heart block series (42 cases)	79%	21%
Carter's heart block series	86%	14%
Ritchie's flutter series	84%	16%

* Read at the Heart Symposium of the Mississippi Valley Medical Association, Lexington, Ky., October 19, 1915.

TABLE II. AGE.

	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90
Cases with normal mechanism	—	15	27	12	26	11	7	2	0
Auricular fibrillation	0	0	5	17	22	27	16	9	1
Alternation of pulse	0	4	3	10	23	25	21	13	1
Heart block	0	0	0	1	2	5	4	5	0
Auricular flutter	0	0	0	3	4	0	0	0	0
Gravier's alternation points (88 cases)	0	3	4	15	16	21	22	4	0
Lewis' auricular fibrillation cases	0	7	26	23	29	27	23	4	5
Lewis' heart block cases	0	7	7	5	8	3	6	5	1
Carter's heart block cases	0	2	3	5	4	2	6	0	0
Ritchie's flutter cases	2	4	3	5	8	13	12	2	1

In every group recorded in Table I, the male sex preponderates, most markedly in the series of heart block and auricular flutter. Cabot,¹ however, in his general analysis of 600 patients with cardiac disease found a very even division between sexes—49% male and 51% female. Also of seventeen children under ten years of age sick with endocarditis in the wards of the hospital during the year, eleven were female and six were male; these children all had normal cardiac rhythm except one, who showed auricular premature beats. From available data we may conclude that auricular fibrillation, auricular flutter, heart block, and *pulsus alternans* are more frequent in the male than in the female.

The age incidence in auricular fibrillation and in alternation of the pulse is strikingly similar, the fifth and sixth decades in each series pre-

(12%), and chloroform in one case (4%). A severe attack of typhoid fever was the only likely factor in one of the two flutter cases of doubtful origin in my own series. Besides producing flutter, diphtheria has been accused of causing heart block and auricular fibrillation,^{3, 6, 7, 9, 10, 11, 12}. Scarlet fever was directly responsible for the acute endocarditis found in two of the seventeen children with endocarditis under the age of ten years seen in the wards of the Massachusetts General Hospital during the year.

Arteriosclerosis apparently played a very important rôle in the production of alternation of the pulse in the cases recorded by Windle.¹⁴

Hyperthyroidism was present in the medical wards of the hospital in seventeen patients without alternation or fibrillation as well as in the five cases recorded in the table. The patients

TABLE III. ETIOLOGY.

Rheumatism

	Total	Mitral Stenosis	Syphilis	Arterio-sclerosis	Nephritis	Hyperthyroidism	Congenital Heart	Doubtful
Cases with normal mechanism	54	28	21	7	7	—	5	6
Auricular fibrillation	48	22	4	26	5	4	0	13
Alternation of the pulse	15	8	14	32	29	1	0	9
Total per cent. of 300 cases	39%	19%	13%	22%	14%	2%	2%	
Heart block	4	1	1	12	0	0	0	0
Auricular flutter	4	2	0	1	0	0	0	2
Gravier's cases of alternation	14%		11%	10% +	47%			
Lewis' cases of fibrillation	60%	52%						
Lewis' cases of heart block	32%		11%					
Carter's cases of heart block	32%		18%	27%				
Ritchie's cases of auricular flutter (25 cases)	44%		16%		8%	4%		
Cabot's general series	46%		12%	16%	20%			

dominating. The age limits of alternation observed were 10 and 83, of fibrillation 21 and 83. Lewis⁸ in 1913 cited the reported age limits of fibrillation as 5 and 84 years. An analysis of 33 out of 45 cases of *pulsus alternans* found by Windle¹⁴ shows 31 over the age of 50 years. The comparison of the cases of normal heart beat with those of fibrillation and alternation demonstrates clearly what we should expect, namely that the older the patient with heart disease, the less likely he is to have normal mechanism and the more likely he is to have fibrillation or alternation.

Etiological factors. Table III shows the relationship of various etiological factors to the more serious disorders of the heart beat. The rheumatic group includes patients with cardiac damage following chorea, rheumatic fever, or tonsillitis.

It is well known that a close relationship exists between mitral stenosis and auricular fibrillation. In my series of 61 patients with this valve lesion 22 (36%) were fibrillating. Lewis⁸ reports that fibrillation was present in 22 (21%) of 106 out-patient cases of mitral stenosis.

Other causes than those recorded in the table among 25 of Ritchie's flutter series¹² were diphtheria in 2 cases (8%), influenza in 3 cases

showing the abnormal cardiac mechanism were chronic cases.

Excessive use of alcohol, tobacco, coffee, and tea apparently played no direct part in the production of the important disorders of the heart beat; a history of previous indulgence was obtained more often from the patients with normal cardiac mechanism than from those with serious disorders of the heart beat.

Eight of the one hundred cases with auricular fibrillation were of the transient or paroxysmal type. So far as I know none of these eight patients has developed a persistent fibrillation but it is probable that some of them will do so eventually. Of six cases of transitory *delirium cordis* reported by Fox⁴ in 1910, five developed permanent irregularity of the pulse. An acute pericarditis, possibly by direct irritation, accounted for the short paroxysms in one of my eight cases of paroxysmal fibrillation.

Twenty-eight of the three hundred cardiac patients with normal mechanism, auricular fibrillation, and alternation of the pulse were of unknown or doubtful origin. At times difficulty was experienced in placing the cases into groups of the various types, i.e. rheumatic, luetic, and so on, but reasonable accuracy was assured by

utilizing all data obtainable: past history, physical examination, urine examination, blood pressure estimation, the phenolsulphonphthalein test, the Wassermann reaction, eye ground examination, and the use of the Roentgen ray.

Observations upon treatment. Table IV shows the number of cases with physical signs of cardiac insufficiency among the three hundred patients with normal heart beat, auricular fibrillation, and alternation of the pulse. Also there are indicated the number of patients subjected to digitalis, morphine, venesection, and the change of diet to five small meals daily. Rest as complete as possible and the administration of digitalis were the therapeutic measures of prime importance in nearly all of the cases. Digitalis acted most favorably and rapidly in the patients with auricular fibrillation. It was given nearly always in the form of 0.1 grain ($1\frac{1}{2}$ grains) pills made directly from the Caesar and Loretz standardized leaf. This preparation proved very effective all through the year, results being obtained in a very few days after beginning its use. There were but two or three patients who were unable to take this preparation. In the urgent cases strophanthin, ouabain, or digipuratum were used intravenously—in thirty-five patients in all: twenty-four with auricular fibrillation, ten with alternation of the pulse, and one with normal cardiac mechanism.

Morphine was used in patients who were decidedly uncomfortable—dyspnoeic and restless. Venesection was employed in the presence of marked venous stasis, cyanosis and dyspnoea. In addition to these therapeutic measures special diuretics such as diuretin and theocin and purgatives such as magnesium sulphate and elaterin were used as needed, especially for marked or persistent oedema. The change in diet to five small meals a day was frequently a useful adjunct.

TABLE IV.

	Physical signs of cardiac insufficiency.				
	Digitalis	Morphine	Venesection	Five small meals daily	
Cases with normal mechanism					
Auricular fibrillation	35	25	20	4	11
Alternation of the pulse	66	64	25	3	11
Total	50	44	22	4	12
Per cent. of 300 cases	151	133	67	11	34
Per cent. of 151 cases	50%				
	88%	44%	7%	23%	

SUMMARY.

1. The male sex has been found to be more subject to auricular fibrillation, auricular flutter, heart block and alternation of the pulse than has the female sex.

2. The older the patient with heart disease the more subject he has been found to be to serious abnormalities of the heart beat.

3. Auricular fibrillation and alternation of the pulse occurred at the same ages, most frequently in the fifth and sixth decades.

4. Rheumatic hearts usually showed normal mechanism or auricular fibrillation, much less commonly *pulsus alternans*.

5. A considerable percentage (36%) of syphilitic hearts showed alternation of the pulse; few were fibrillating.

6. A patient with cardiac insufficiency in the course of cardiorenal disease was very apt to show *pulsus alternans*, either constant or more frequently only after ventricular premature beats.

7. Cardiosclerosis often resulted in the production of fibrillation and alternation.

8. Hyperthyroidism of long standing was sometimes attended by auricular fibrillation.

9. Alcohol, tobacco, tea, and coffee appeared to play no direct part in the production of serious disorders of the heart beat.

10. Two-thirds of the patients with auricular fibrillation, one-half of those with alternation of the pulse, and one-third of those with normal mechanism in the present series showed physical signs of cardiac insufficiency.

11. Digitalis was used in 88% of these decompensated cases, almost always in the form of pills of standardized leaves. Intravenous medication was used in urgent cases only.

12. Morphia was given beneficially in nearly one-half of the patients with physical signs of insufficiency, often one dose sufficing to give the patient the first comfortable night in weeks.

13. Venesection was found useful in a few urgent cases.

14. The change in diet to five small meals daily was often much appreciated by the patient.

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Book Reviews.

S. Weir Mitchell, M.D., LL.D., F.R.S. 1829-1914.
Philadelphia, 1914.

This privately printed volume consists of the memorial addresses and resolutions presented at

the special meeting of the College of Physicians of Philadelphia, held upon the death of Dr. S. Weir Mitchell, January 6, 1914. Besides the record of this meeting, it contains four minutes passed, upon this occasion, by the trustees and medical council of the University of Pennsylvania, the directors of the Library Company of Philadelphia and the trustees of the Jefferson Medical College. It also contains the record of a joint meeting in memory of Dr. Mitchell, held on March 31, 1914, by the College of Physicians of Philadelphia, the American Philosophic Society, the University of Pennsylvania, the Library Company of Philadelphia, the Jefferson Medical College and the Academy of Natural Sciences. Dr. James C. Wilson, president of the College of Physicians, presided at this meeting and addresses were delivered by Mr. Talcott Williams on Dr. Mitchell as a man; by Dr. William H. Welch on Dr. Mitchell as a physician and a man of science; and by Mr. Owen Wister on Dr. Mitchell as an author. Apart from the individual interest of all these addresses, the volume, as a whole, is of extreme value as a combined record of appreciation of Dr. Mitchell by his colleagues as one of the great physicians and men of letters whom this country has produced. An admirable portrait engraving of Dr. Mitchell forms the frontispiece of the book.

Old London's Spas, Baths and Wells. By SEP-TIMUS SUNDERLAND, M. D., London: John Bale, Sons and Danielsson. 1915.

This volume, by the president of the Balneologic and Climatologic Section of the Royal Society of Medicine, is based on his presidential address before that body in November, 1914. This has now been expanded into a history of old London, with reference to its water supply, wells, baths, medicinal springs and spas. To the physician it is of interest not merely as a professional study of water supplies and of hydrotherapy, but as a local medical history of London with many allusions and collateral references to history of a general and non-professional character. It is charmingly illustrated with thirty-six full page plates, representing many scenes in and about London, both of the past and of the present. The text is agreeably written and will appeal immediately to non-professional as well as to medical readers. The volume closes with a valuable alphabetic bibliography of over fifty titles. In its editorial comment on Dr. Sunderland's work, the *Medical Press and Circular* quotes as follows from Thomas Dekker's famous description of London in one of his plays.

"Oh London, thou art great in Glory and envied in thy greatness. Thy Towers, thy Temples, thy Pinnacles are set about thine Head like a Garland of fine gold. Thy waters hang like fringes of silver upon the borders of thy Garment. Thou art admired like a Bride that drawest all men that look upon Thee to be in

love with Thee." The waters are now most of them drained into the Thames, and the fringe is almost wholly invisible. Kilburn, Tyburn and other similar names perpetuate its memory, and to the observant eye local fogs still attest the subterranean presence of its components. The subject of these underground rivers is an interesting one; to some it is even absorbing. Perhaps Dr. Sunderland in his imitable manner will some day tell us about them, too."

It is sincerely to be hoped that the author will comply with this editorial suggestion.

Nursing in Diseases of the Eye, Ear, Nose and Throat. By the Committee on Nurses of the Manhattan Eye, Ear and Throat Hospital. Second edition, thoroughly revised. Philadelphia and London. W. B. Saunders Company. 1915.

The first edition of this text-book by the ophthalmologic, otologic and laryngologic surgeons of the Manhattan Hospital was reviewed in the issue of the JOURNAL for Jan. 5, 1911 (Vol. cxiv, p. 26). In this second edition not only has the text been edited with a view to the elimination of obsolete material, but sections have been added on several new subjects, such as the preparation of surgical dressings, mental disturbances after operations on the eye and functional tests of the static labyrinth. This chapter on feeding and care of infants has been especially revised in the light of the latest teaching on this subject. The book is well illustrated with eighty-one text figures and should continue a valuable volume in the series of text-books for nurses issued by this publisher.

Compend of Human Anatomy. Revised by D. GREGG METHENY, M.D., L.R.C.P. and S., Edin.; L.F.P.S., Glas. Eighth edition. Philadelphia: P. Blakiston's Sons and Company.

The original edition of this familiar manual in Blakiston's series of so-called quiz compends was prepared by Dr. Potter. This eighth edition of Potter's work by Dr. Metheny maintains the merits and disadvantages of the original. The danger of such compendia as sole sources of information is one against which students need constantly to be warned; but properly used as a syllabus in conjunction with larger text-books, there is a legitimate field of use for an accurate and well-written work of this sort. The reviser is particularly to be commended for his sensible and conservative stand in the matter of terminology, adopting, as he has done, only those terms from the Basle nomenclature which seem entitled to survival. The book is illustrated with 139 text figures, many tables and sixteen useful plates of the arteries and nerves. With the reservations previously indicated, it may be recommended as a useful aid to students.

Manual of Embryology. By A. MELVILLE PATERSON, M. D., F. R. C. S. London: Henry Frowde and Hodder and Stoughton. 1915.

From time to time the JOURNAL has published reviews of German and American works on embryology. This English textbook on the subject represents the author's lectures and demonstrations as professor of anatomy in the University of Liverpool. The work is divided into two parts, the first dealing with general embryology, the second with organogeny. In his introduction he wisely emphasizes the importance of the study of comparative anatomy and embryology, not only for the understanding of gross anatomy but for the intelligent interpretation of medical and surgical disease. Ontogeny, he points out, "is dependent on, and inextricably bound up with phylogeny." The prime agent in the production of abnormality is excessive or arrested development due to the precocity or subordination of certain of the factors concerned in embryologic evolution. Such abnormalities he differentiates from true teratologic conditions due to pathologic causes. The work is well written and arranged and the judicious use of black-faced type facilitates emphasis and study. It is particularly to be commended for the figures, 304 in number, with which the text is illustrated. A few of these are in colors and all are models of clearness and simplicity. The book should find a valuable field as a textbook in this country as well as in Great Britain.

The Work of Our Hands. By HERBERT J. HALL, M. D., and MERTICE M. C. BUCK. New York: Moffat, Yard & Co. 1915.

This volume, published as a study of occupations for invalids, is based on the experience of the authors who, for several years, have devoted special attention to the development of modified work in the treatment of nervous disability and as an aid for the self-support of the blind, crippled and infirm. The book is divided into two parts. The first, by Dr. Hall, represents his work in his sanatorium at Marblehead, Mass., the second, by Miss Buck, deals with her experience in charitable institutions of New York City. Much of Dr. Hall's material has previously appeared in columns of this JOURNAL and of the *Journal of the American Medical Association*. The book is illustrated with eight full page plates. At its conclusion is an appendix in which are tabulated the varieties of occupation employed in the industrial department of the Massachusetts State Colony for the Insane at Gardner. There is also a tabular statement of the agricultural farm products, with appended values, at the several cottages of this institution. The work presents numerous evidences of what may be accomplished with patience and persist-

ence in the use of the work treatment and the value of this treatment is evidenced by the results obtained.

The Practitioner's Encyclopedia of Medical Treatment. Edited by W. LANGDON BROWN, M. D., F. R. C. P., and J. KEOGH MURPHY, M. C., F. R. C. S., London: Henry Frowde and Hodder and Stoughton 1915.

This encyclopedic volume, dedicated to Sir William Osler and Sir Clifford Albutt, consists of a series of non-alphabetic monographs by distinguished British experts on various aspects of therapeutics. It is divided into two parts, the first being concerned with methods, the second with agencies in treatment. The subjects are logically arranged, being grouped according to the natural and systemic nosologic categories. In his introduction Sir Clifford Albutt sketches the history and rationale of therapeutics. The volume is well printed but without illustrations. It concludes with an appendix of notable alterations in potency and nomenclature and notable additions of organic chemicals in the British pharmacopeia of 1914. There is an extensive and convenient index.

The Principles of Human Physiology. New (2nd) edition. By ERNEST H. STARLING, M. D., F. R. C. P., F. R. S., Jodrell Professor of Physiology in University College, London. Octavo. pp. 1271. With 566 illustrations, including 10 in colors. New York and Philadelphia: Lea & Febiger. 1915.

The second edition of this excellent work is chiefly noteworthy for its very satisfactory presentation of the energetics of muscular activity. Its discussion of nervous conduction is in accord with the most recent discoveries in that field. In general, such minor changes have been made as are necessary to keep the book abreast of the rapid progress that is now being made in physiology. Unfortunately, in his discussion of the suprarenal bodies and of adrenin, the author has failed to take into account the recent very enlightening observations concerning the emergency function of adrenin. The older point of view, which emphasizes the rise in blood pressure induced by this hormone, places an incidental function so much in the foreground that the truly remarkable significance of the mechanism escapes the student entirely. To be sure, much of this work is so recent that it may not have been possible to include it in this book. The necessity of issuing frequent editions of expensive textbooks is to be regretted but probably cannot be avoided in sciences that are advancing as rapidly as is physiology.

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CHRISTIAN SCIENCE A CHAMPION OF RADICAL SURGERY.

In the last days of the late Mrs. Eddy it was said that she relaxed her earlier principles sufficiently to permit of her followers making use of surgery under certain conditions, as, for instance, "belief in" a broken bone. It was even reported that the founder herself entertained a suspicion of, if not a belief in, toothache, for which she resorted to the dentist instead of trusting solely in God. So that there are said to be at the present time certain "Christian Science dentists," who treat an exposed nerve not alone by the pure Truths of the Spirit but by the addition of cold steel as well.

Still, operative surgery does not seem to be a part of the teachings of "Science and Health," and few of us expected to see the day when the official organ of that cult would take the medical profession to task for lukewarmness in zeal for bloody surgical operations. Yet this

is just what happens in the leading editorial in *The Christian Science Monitor* of November 19, of which marked copies have been sent to many physicians by the management.

The case is that of the too much talked of Chicago monstrosity, which a surgeon simply decided to let alone. A blind, deaf and deformed monster had, in addition, as we understand it, an intestinal occlusion of a nature which in a normal infant would have demanded a surgical operation in hope of removing the obstruction (unless, indeed, "Science" could have promptly stepped into the breach and established normal function).

The question of an *active* euthanasia was never raised as to this unfortunate child. That is an entirely different issue, regarding which medical men are divided, but as to which the prevalent opinion is still doubtless adverse. A *passive* or *permissive* euthanasia seems to have commended itself to the surgeon in charge and also to the mother of the child. Hence the infant was simply let alone, and Nature, which in her inscrutable mystery had sent the child into the world lacking most of its faculties, was allowed through the intestinal obstruction, which was one of the chapters in the pathologic history, to take away the life she had sent.

Yet the *Monitor* says that the doctor "broke the law." "He permitted the baby in this case to die."

Where else in the world can we find such sublime confidence in the omnipotence of the surgical art as in this assumption that an operation, which the doctor is so savagely scored for omitting, would have certainly saved the child's life! Many a medical man has less confidence. Let us quote:

"The claim of a Chicago doctor to the right to destroy human life for medical reasons brings the whole question of medical autocracy into the strongest light. . . So long as any medical man is content with campaigns for pasting red crosses on the shoe toes of children, he is merely humorous. When he goes further and proposes tuberculosis weeks, or takes children down to malaria swamps to fill their minds with the dangers of mosquito poisoning, he becomes dangerous, inasmuch as he instills into the human consciousness a dread of the very disease which he professes later to attempt to eradicate from a body that consciousness has developed. When, however, he claims the right to decide whether a patient is to live or die, he involves himself in what we assume orthodoxy would term blasphemy, the law courts illegality, and the ethical standards criminality. Years ago the legislative bodies of the world took up arms against what

is known as baby farming. Baby farming had become a process for expediting infant mortality, and we see no reason whatever for supposing that the immorality, which found vent for its ingenuity in baby farming, cannot again find room for the same ingenuity in a process of diagnostic removal."

The Chicago surgeon seems to have been guilty in this case at the same time both of withholding the knife and of making a "diagnostic removal," a feat which was to be expected of the ingenuity which caused the medical profession to make that well-known invention of theirs, the baby farm, to expedite infant mortality.

To the order of minds which are tickled with the "humorousness" of Red Cross work, such an expedition as checked the ravages of typhus in Serbia may well appear a frolicsome farce. The "dread" of typhus killed 150,000 Serbians before it was dispelled. Yet malaria and tuberculosis have as little foundation, and not only are all these merely a state of fear, but these people now speak even of the human "body that consciousness has developed."

The former shibboleths seem to stand fast, but what shall we say when told that a surgeon who refuses to operate has done what "orthodoxy would term blasphemy, the law courts illegality and the ethical standards criminality"!

CHARLES F. WITTINGTON.



FOOD-DEFICIENCY DISEASES.

THE study of physiological chemistry and the metabolic processes of the body has focused a new interest on the part that the individual food elements play in the body processes. Perhaps the condition known the longest to be caused by the deprivation of some food element, with resulting metabolic disturbances characterized with definite symptomatology, is scurvy. Even long ago when the nature of the condition was not understood, and the disease very prevalent on ships long away from port or in other places where fresh food supplies were not accessible, it was yet known that the addition to the dietary of fresh food was curative. The disease is now very rare, mainly due to the improvements in transportation wherein ships are not so long away from the possibilities of fresh larder. However, when it does occur, as happened very recently in a sea raider, the disease bobs up with the same character and severity as in years by gone. Fresh vegetables, fresh meat and lime salts and lime juices are the elements

of food that are both curative and prophylactic against scurvy. In bottle-fed babies, scorbutus remains a definite and recognized disease, occurring not infrequently as a result of feeding exclusively with cooked milk, and from the consequent deficiency of citrates in the diet.

The range of food-deficiency includes, beside, rickets, tetany, or allied polyneuritic conditions, beri-beri, pellagra, and perhaps also diabetes.

Rickets is caused mainly by faulty feeding in children. The long administration of boiled milk seems to predispose. The boiling appears to destroy some enzyme necessary in metabolism. Rachitis is further associated with an excess of carbohydrates over proteids in the diet, and is dependent on the consequent deficiency of calcium salts. It is peculiar, however, that the disease does not develop much after two years of age. It is notoriously common where environmental conditions are very bad.

Much study has been expended on the nature of beri-beri because it represents a disease of great prevalence and fatality in the Orient. The one-sidedness in food consumption of those peoples has long been suspected as the causative factor. They subsist almost entirely on rice, and for some reason polish it; that is, they remove the shell. It has been found that where the rice is consumed whole, beri-beri will not develop. In fact, so well is this now established that in the Philippines, under Heiser, a tax of some magnitude has been placed on rice polishings to prevent this. The feeding of rice polishings to those suffering from beri-beri was found to cure them. Or, those subsisting on polished rice, who would add to their diet separately a quantity of rice polishings, would not contract the disease. The element removed with the polishings is believed to be a sulphur compound, and it is this deprivation which causes the nervous symptoms so characteristic of this disease.

Recent investigations by Goldberger* of the Hygienic Laboratory have perhaps fully confirmed the previous well founded suspicion that pellagra is due to a food-deficiency. His experiments on a prison colony of about eighty in which eleven volunteered for the experiment of being fed on a one-sided diet, while the rest acted as controls, are classic. Within five months six out of the eleven developed undoubtedly cases of pellagra. It is a one-sided diet of cereal carbohydrate that seems to be at the bottom of this condition. A summary of the

* Weekly report United States Public Health Service, Nov. 12, 1915.

experiments by Dr. Goldberger and Dr. Wheeler is published in another column of this issue of the JOURNAL (page 862).

No certainty in food etiology has yet been found in the causation of diabetes, though the trend of present investigation is in that direction.

In nearly all of these cases of food-deficiency it seems that it is the lack of proteins that stands out prominently. The food element lacking in these conditions has been named a vitamine. There are both proteid and carbohydrate vitamines—both necessary for normal metabolism. All of these vitamines are different according as they are of animal or of vegetable extraction. Human beings are omnivorous and need both animal and vegetable food. In any event it is rather the kind of food—the variety and quality—than the quantity which is the determining factor in metabolism. There is much more real starvation in a gluttony with food of one variety than in the ingestion of a minimum quantity of a mixed food. Starvation cannot be induced by minimum quantity as long as there is maximum variety. Indeed, a small quantity of mixed foods is more satisfying to the appetite than a large quantity of a single kind.



CHILD LABOR LEGISLATION.

THE Children's Bureau of the Department of Labor now reports that forty-five states have passed child welfare laws. It will be remembered, however, that Congress itself defeated a bill recently which purposed to control indirectly child labor by prohibiting the passage in interstate commerce of articles manufactured in canneries, mills or factories by children under fourteen years of age. Clearly the abolition of child labor, no matter in what form accomplished, would seem to be most commendable legislation. It is a step in the direction of progress—a step in the conservation of health and life. The confinement necessarily entailed in these industries and the devoting of energies to other purposes than to the child's own physical and mental development, are a handicap that cannot be easily overcome in later years.

Nevertheless, this obstacle to human progress will not be removed by such an evasion of the real issue as is represented by the contemplated federal law, or as was previously proposed by Senator Beveridge of Indiana, who urged that

articles manufactured by children shall not be considered as legitimate articles of commerce, and thus their transportation prohibited. Clearly the remedy lies either in the uncertain method of having each state make its own varied restrictions of child labor, or in so enlarging the legitimate health powers of the federal government that it can directly control this palpable menace to health. It is during the most rapid growth and development of childhood that the very slightest obstruction tends to permanent disorganization of these processes.

In the same class with child labor legislation, and bearing on it indirectly in respect to child welfare, is legislation controlling the hours of labor and the kind of labor of women. The federal court upheld the right of the state to regulate the hours of labor in certain occupations when it laid down the rule that "the right to regulate or control persons in any trade or occupation that affects the health of the people in general is no longer an open question." Yet it demurred at making special exemptions in favor of women and against woman labor. Labor of the kind prohibited in the child labor legislation cannot fail to have a bad effect on the actual or the potential mother, on her offspring, and in this way on the people in general. Indeed, in the investigation by David Heron of the Yorkshire, England, woolen mills, he found that mothers' labor had a worse effect on the child and on the community than child labor. For, prior to the prohibitive legislation against child labor, the families were large—the children were assets who were well looked after; and since this legislation, prenatal destruction of child life is common, because childbearing is a drawback to efficiency; and children born show the ill effects of maternal pressure and fatigue. Obviously there is little or no choice between these two evils. The remedy lies only in legislation hand in hand for both conditions.



SWIMMING-POOL SANITATION.

WITH the growth in popularity of swimming as an amusement and with its increasing appreciation as an aid to health and safety there comes the danger of the dissemination of disease through the medium of the municipal swimming pool. At present in this country 99 large cities have public swimming pools, and how many more cities and towns have something of the kind we

have no means of knowing. Care of these pools naturally varies from the most scrupulous to the most indifferent. Even among those where the method of care is intended to be the best possible the ideas of effectual sanitation vary so much that it does not seem probable that they can all be correct.

With the purpose of ascertaining what methods were in current use, Dr. Manheimer recently investigated forty-six municipal and other pools in large cities and published his results.* He describes the methods of cleansing used in six different pools as typical of all. The methods in use were, broadly speaking, mechanical, chemical, by refiltration, or by combinations of two or more of these methods. The best method of all he states to be refiltration plus chemical purification, the preferred chemical to use being chloride of lime in the proportion of one of chloride to one million of water. He especially emphasizes that pools should be large enough, frequently diluted, carefully supervised and often refiltered.

The principal diseases spread by means of the community swimming pool are venereal diseases and typhoid fever. It may be easily understood theoretically how syphilis and gonorrhea can be distributed by such a medium as the public bath, but typhoid fever does not at first glance seem such a probable menace. The studies of Rosenau, Lumsden and Kastle have shown that three-tenths per cent. of people are typhoid carriers. That is, in a city the size of New York there must be about 15,000 typhoid carriers. Or, to present it in another way, supposing that we have a swimming pool which about 300 persons use each day, the probability is that one of these bathers is a typhoid carrier. These facts alone, aside from the esthetic satisfaction which must accompany the use of a swimming pool which is known to be kept clean, are sufficient to impress upon the physician who has the health of the community at heart the necessity of the most approved methods of sanitation of such places.

* Essentials of Swimming-Pool Sanitation. By Wallace A. Manheimer, Ph.D., U. S. Public Health Reports, Sept. 17, 1915.

Card Medical Bulletin of May, 1915, a brief article by Dr. Paul Thorndike of Boston, discussing the general subject of surgical specialties in hospitals, particularly as illustrated by the organization and work of the recently organized urological service at the Boston City Hospital. The success which this service has attained during the two years of its existence gives additional interest and importance to the subject and to the writer's comment.

The problem of establishing special surgical services in large general hospitals is always difficult on account of the inevitable and natural feeling on the part of general surgeons that such a procedure takes from them opportunity which is legitimately theirs. At the same time it is imperative that such services should be established on account of the best interests of the patients, of medical education and of those surgeons who are devoting their time and energy to the acquirement of expert skill in special branches of surgery.

The method adopted at the Boston City Hospital for the reconciliation of these conflicting interests and necessities seems largely to have solved this problem. By an equitable division of cases, it secures all the advantages of a special service without infringing on the rights and interests of other members of the hospital staff. In point of fact its success has been particularly marked in the efficiency already developed by the new urological service at that institution. In practice, if not in theory, it would seem that this method might well be adopted, if indeed it has not already been so, in other departments of the City Hospital and in other institutions.

MEDICAL NOTES.

PREVALENCE OF MALARIA, MENINGITIS, PLAGUE, POLIOMYELITIS, SMALLPOX, TYPHOID AND YELLOW FEVERS.—The weekly report of the United States Public Health Service for November 12 states that during the first quarter of 1915, 2359 cases of malaria were reported in Arkansas. During the week ended October 23 there were 35 cases of cerebrospinal meningitis in Elizabeth, N. J., and seven cases of poliomyelitis in Cleveland, Ohio. A fatal case of plague occurred in Hawaii on October 30. During the week ended November 6 four new foci of smallpox infection were reported in Minnesota, the number of cases being few. During the week ended October 23 there were 126 cases of ty-

THE WORK OF A SPECIAL SURGICAL DEPARTMENT.

In another column of this week's issue of the *JOURNAL* we are glad to republish from the *Har-*

phoid fever in New York City and 45 in Baltimore. A case of yellow fever arrived at Balboa, Canal Zone, on October 25, aboard the steamship *Jamaica*, from Buena Ventura, Columbia.

HOSPITAL GIFT.—It is announced that Mrs. Isaac L. Rice of New York City has given to the Beth Israel Hospital of New York the sum of \$1,000,000 for the establishment in that city of a hospital, to be known as the Isaac L. Rice Hospital for convalescents. This new hospital is not to be a part of the older institution but will be under the administration of the Beth Israel Hospital Association.

NEW YORK HEALTH DEPARTMENT'S LOW 1915 DEATH RATES.—Dr. Guilfoy of the New York Department of Health reports that there were 1324 deaths during the past week with a rate of 12.34 per one thousand of population, against that of 1276 deaths in the corresponding week in 1914, an increase in the absolute number of deaths of 48, and an increase in the rate per 1000 of the population of .2 of a point.

The most noteworthy features of the mortality during the week were the decrease in the number of deaths reported from the acute infectious diseases, and the increase in the deaths reported from the diarrheal and respiratory diseases. The mortality from organic heart disease and pulmonary tuberculosis remains approximately the same. The mortality of children under one year of age was considerably above that of last year, the total reaching 232 as against 183, an increase of 49 deaths. Between one and five years of age the mortality was slightly lessened. At the other age groups approximately the same number of deaths were reported.

The death rate for the first 46 weeks of the year 1915, based upon a revised estimate of the population, was 13.59 per one thousand of population as against a rate of 13.75 per one thousand of the corresponding period of 1914, a decrease in the mortality of .16 of a point. If this decrease be maintained during the remaining weeks of the year there will be approximately 885 fewer deaths than in the year 1914.

EUROPEAN WAR NOTES.

CHOLERA IN AUSTRO-HUNGARY AND GERMANY.—During the week ended September 25, 1915, there were among civilians in Germany, two cases of Asiatic cholera each at Thorn, Tilsit and Prettow. Other cases occurred among soldiers in prison camps at Allenstein, Cassel, Marienwerder, Oppeln, Posen and Stettin.

SECOND MEDICAL EXPEDITION TO GERMANY.—

On Nov. 25 there sailed from New York City aboard the *Hellig Olav* for Copenhagen, the second medical expedition to Germany under the auspices of the German relief committee of New York. The personnel consists of Dr. Fred Kammerer, Dr. Kurt Sauer, Dr. Frank D. Gorham,

and six nurses. Supplies were carried for a hospital of 400 beds.

AMERICAN SURGEONS IN USKUB.—Report from Saloniki, Greece, on Nov. 17, by way of Paris on Nov. 23, states that at the recent capture of Uskub, Serbia, by the victorious Bulgars, five American Red Cross surgeons remained in that city. They are Dr. Stanley S. Osborne, of Peabody, Mass.; Dr. Charles E. Fox, of Baltimore; Dr. Harry Plotz, of New York; Dr. George Bahr, of Brooklyn; and Dr. A. F. Cornelius, of Berea, Ky. It is understood that negotiations are in progress, through the American and Bulgarian consulates, to secure their release.

WAR RELIEF FUNDS.—On Nov. 27 the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund	\$288,094.04
Red Cross Fund	142,177.51
American Ambulance	70,565.58
Polish Fund	56,258.11
Serbian Fund	50,602.60
Allied Fund	38,453.30
British Fund	38,048.56
French Fund	25,440.66
Armenian Fund	16,939.63
LaFayette Fund	12,382.99
Italian Fund	12,101.69
Surgical Dressings Fund	11,085.50
St. John's Ambulance	392.00

BOSTON AND NEW ENGLAND.

THE WEEK'S DEATH RATE IN BOSTON.—During the week ending Nov. 27 there were 210 deaths reported, with a rate of 15.04 per 1,000 population as compared with 22 and a rate of 16.08 for the corresponding week of last year.

There were 30 deaths under 1 year as compared with 29 last year, and 68 deaths over 60 years of age against 71 last year.

Total deaths reported in 47 weeks from Jan. 2 to Nov. 27 were 10,621 against 10,645 for the corresponding period in 1914.

Deaths under 1 year reported in the same period were 1812 against 1804 for the corresponding period in 1914.

In Boston in 1914 per 1000 births of mothers born in the United States there were 120 deaths under 1 year; while the rate for children of mothers born in Canada was 107; for those of Irish mothers, 101; for those of Italian mothers, 88; and for those of Russian and Polish mothers, 78.

Similar findings for New York City based upon official figures have been published recently. In a word, if a baby wishes to survive it should choose a foreign-born mother.

DEDICATION OF ST. ELIZABETH'S HOSPITAL.—On Sunday, Nov. 21, the new buildings of St. Elizabeth's Hospital, Brighton, were formally dedicated with fitting ceremonies. Although the

hospital was opened on Aug. 31, 1914, the death of Pope Pius X had made it necessary to postpone the dedicatory exercises until the present time. Low mass was celebrated in the chapel, followed by an address by Cardinal O'Connell and an official inspection of the hospital buildings.

A RULING ON INSULATION. On November 19, the State Industrial Accident Board rendered a decision at Quincy, Mass., that a sunstroke received during the performance of work does not constitute a claim under the Workingmen's Compensation act. The ruling was made in a case in which the Board found that the insulation was not caused by anything unusual in the character of the work and that it did not arise out of or in consequence of the employment.

ESTABLISHMENT OF QUIET ZONES.—The subject of quiet zones about hospitals has been discussed in the JOURNAL from time to time in the past. On Monday of last week, November 22, the Boston City Council unanimously passed an ordinance providing for the establishment of such zones in this city. The ordinance requires that automobiles and horse-drawn vehicles shall run slowly and with a minimum of noise within one hundred yards of all hospitals. Venders and other persons are also warned not to make undue noise, and the use of musical instruments is prohibited within these zones.

DANVERS PATHOLOGIC CONFERENCE.—On November 19 there was held at the Danvers State Hospital a conference in commemoration of the twentieth anniversary of the foundation of the pathologic laboratory at that institution, the first laboratory of its sort to be established in a hospital for the insane in Massachusetts. About seventy physicians were in attendance at the conference, and among the guests were Dr. Arthur H. Harrington, superintendent of the Rhode Island State Hospital, and Dr. Charles W. Page. At the afternoon session a series of papers was presented by the following physicians: Dr. Henry M. Adler, Harvard; Dr. James Ayer, Harvard; Dr. Henry A. Cotton of the State Hospital, Trenton, N. J.; Dr. E. E. Southard, Dr. M. M. Canavan, Dr. James J. Putnam, Dr. Page, Dr. Harrington, Dr. Sanger Brown, Dr. S. P. Kramer of Cincinnati, and Dr. L. G. Lowery, pathologist at Danvers.

NEW ENGLAND PEABODY HOME.—The annual meeting of the New England Peabody Home for Crippled and Deformed Children was held in Boston on November 15. Dr. Robert Souter reported particularly on the value of the sun treatment for surgical tuberculosis. The following staff was appointed for the ensuing year: surgeons, Dr. Robert W. Lovett, Dr. Robert Souter and Dr. Edwin Fiske; attending physician, Dr. Clarence Bryant; advisory board, Dr. Abner Post and Dr. Edward B. Kellogg.

SOCIAL SERVICE ANNIVERSARY.—The tenth anniversary meeting of the Social Service Department of the Massachusetts General Hospital was held in Boston on Nov. 30 under the presidency of Dr. Richard C. Cabot. The principal address was by Mr. Homer Folks, secretary of the State Charities Aid Association of New York, on "Humanizing the Institution."

MENTAL HYGIENE CONFERENCE.—Dr. A. J. Rosanoff of Kings Park State Hospital, New York, in addressing the Mental Hygiene Conference held recently in this city, stated that 22 per cent. of the male patients admitted to the New York state insane hospitals in 1913 owed their disability to the immoderate use of alcohol. A large number of patients, although predisposed to insanity, probably would have escaped its development had they not been intemperate. Dr. Irwin H. Neff of the Norfolk State Hospital discussed the rational care of inebriates. Dr. Henry P. Frost of the Boston State Hospital discussed the need of assistance and supervision of patients discharged from insane hospitals, and Dr. John B. MacDonald spoke of the usefulness of the newly established out-patient department of the hospital. He reported that during the months of July, August and September, over 1200 persons visited the clinic and 2850 visits were made by the social workers connected with the department to patients on parole under the care of the hospital, and to persons in the community who, of their own volition, sought advice and assistance. Professor W. H. Burnham of Clark University urged a thorough medical and mental inspection of all school children in order that mental and physical defects might be checked and controlled before they become fixed habits.

BOSTON ASSOCIATION FOR THE RELIEF AND CONTROL OF TUBERCULOSIS.—The twelfth annual meeting of the Boston Association for the Relief and Control of Tuberculosis was held in this city on Monday of last week, November 29. Following the regular business there were addresses by Miss Ella Phillips Crandall, R.N., executive secretary National Public Health Nurses' Association, New York City, on "The Tuberculosis Nurse as a Modern Health Agent"; and Miss Eunice H. Dyke, R.N., superintendent of Nurses' Department of Public Health, Toronto, Canada, on "Generalized Nursing in Toronto."

DISTRICT HEALTH OFFICERS.—The State Department of Health has accepted the resignation of Dr. W. H. Coon, of Haverhill, Mass., appointed district health officer, who is to become medical supervisor of a large manufacturing plant. To fill the vacancy, Dr. Lyman A. Jones of North Adams will be transferred from the Berkshire District to Haverhill and a new health officer will be appointed to take charge of the Berkshire District. It is hoped that Dr. Stanley

S. Osborne, a member of the American Red Cross Sanitary Commission of Serbia and now captured by the Bulgarians, may be reached and the appointment given to him.

REPORT OF THE FAULKNER HOSPITAL.—The eleventh annual report of the Faulkner Hospital of Jamaica Plain, Mass., for the year ending May 1, 1915, states that the most notable feature of the work of the hospital has been the growing demand for maternity service. There have been accommodated during the past year forty-nine cases in contrast to nine cases of five years ago, and many have been turned away. The trustees, realizing the urgent need of a separate building in which to care for such cases, have appointed a committee to consider the question of erecting a separate maternity building. The total number of patients treated during the year was 635.

LECTURE BY DR. STRONG.—On Monday of last week, November 22, Dr. Richard P. Strong, professor of tropical medicine in Harvard University, gave an illustrated lecture in Sleeper Hall, Boston, on Serbia and the suppression of typhus fever. This lecture was given for the benefit of the Social Service Department of the Massachusetts General Hospital and described Dr. Strong's experience as chief of the American Red Cross Typhus Commission last summer.

MUNICIPAL HEALTH UNITS.—It is announced that, with the approval of Mayor Curley, Dr. Francis X. Mahoney, Boston Health Commissioner, will establish in the Ward and Municipal Building on Blossom Street, a trial health unit, being a headquarters station for the district health inspectors and nurses. This project has been endorsed by the Boston Instructive District Nursing Association and the Boston Milk and Baby Hygiene Association. If it proves successful, it is planned to establish similar permanent units in other sections of the city.

Massachusetts Medical Society.

PLYMOUTH DISTRICT MEDICAL SOCIETY.—On Tuesday of last week, November 23, the Plymouth District Medical Society held a meeting and dinner at Brockton, Mass., in recognition of the work of five local physicians, each of whom has been engaged in practice for at least fifty years. These five men are Dr. A. Elliot Paine of Brockton, Dr. Calvin Pratt of Bridgewater, Dr. Edward Cowles of Plymouth, Dr. Horatio F. Copeland of Whitman, and Dr. Samuel H. Durgin of Duxbury. All are veterans of the Civil War. The dinner, which was highly successful, was attended by about seventy members of the society.

Obituary.

GEORGE EDWIN PINKHAM, M.D.

DR. GEORGE EDWIN PINKHAM, a retired Fellow of the Massachusetts Medical Society, died at his home in Lowell, November 15, 1915, aged 75 years.

Dr. Pinkham was born in Lowell in 1840. He received his early education at the Dover High School and Franklin Academy, Dover. After pursuing a course of study at the Harvard Medical School, he entered Dartmouth Medical School, and graduated from there with the degree of M.D. In 1862 Dr. Pinkham went to Lowell for the purpose of studying, but at the outbreak of the Civil War he enlisted in the famous Sixth Massachusetts Regiment, and served throughout the war in the capacity of assistant surgeon. When the army was disbanded, Dr. Pinkham returned to Lowell and settled permanently in that city, where he pursued his chosen calling until illness incapacitated him.

He was commandant of Post 185, G.A.R., and was at one time medical director of the first brigade of Massachusetts Volunteers for seven years. In 1866 he was a member of the Lowell council, alderman in 1877, member of school committee during the years 1870, 1874 and 1875, 1880 and 1881, city physician from 1866 to 1868. He was president of the Middlesex North Medical Society for two years, and since 1862 had been a member of the Massachusetts Medical Society. He is survived by his widow.

Miscellany.

EXPERIMENTAL INVESTIGATION OF THE CAUSE OF PELLAGRA.

THE United States Public Health Service has recently issued a bulletin describing the progress of the experimental investigation which it has been making, with a view to determining, if possible, the cause and the cure of pellagra. As a result of this research it is suggested that pellagra is, in reality, a deficiency disease, analogous to beri-beri and scorbutus, caused probably by insufficiency of protein diet. The statement issued by the department is in part as follows:

"Pellagra has been increasing alarmingly throughout the United States during the last eight years, and it is estimated that 75,000 cases of the disease will have occurred in the United States in 1915, and of this number at least 7500 will have died before the end of the year. In many sections only tuberculosis and pneumonia exceed it as a cause of death."

The most recent experiment of the Public Health Service was carried out at the farm of the Mississippi State Penitentiary about eight miles east of Jackson, Miss., and together with the previous work of the Service, completes the chain in the prevention and cure of the disease. The work at the Mississippi Farm has been in charge of Surgeon Joseph Goldberger and Assistant Surgeon G. A. Wheeler of the United States Public Health Service. The Farm consists of 3200 acres, in the center of which is the convict camp. The final experiment was undertaken for the purpose of testing the possibility of producing pellagra in healthy human white adult males by a restricted, one-sided, mainly carbohydrate (cereal) diet. Of eleven convicts who volunteered for this experiment, six developed a typical dermatitis and mild nervous gastro-intestinal symptoms.

Experts, including Dr. E. H. Galloway, the secretary of the Mississippi State Board of Health; Dr. Nolan Stewart, formerly superintendent of the Mississippi State Hospital for the Insane at Jackson; Dr. Marcus Hause, professor of dermatology, Medical College of the University of Tennessee, Memphis, Tenn.; and Dr. Martin R. Engman, professor of dermatology in the Washington Medical School, St. Louis, Mo., declare that the disease which was produced was true pellagra.

Prior to the commencement of these experiments, no history could be found of the occurrence of pellagra on the penitentiary farm. On this farm are 75 or 80 convicts. Governor Earl Brewer offered to pardon twelve of the convicts who would volunteer for the experiment. They were assured that they would receive proper care throughout the experiment, and treatment should it be necessary. The diet given was bountiful and more than sufficient to sustain life. It differed from that given the other convicts merely in the absence of meats, milk, eggs, beans, peas, and similar protein foods. In every other particular the convicts selected for the experiment were treated exactly as were the remaining convicts. They had the same routine work and discipline, the same periods of recreation and the same water to drink. Their quarters were better than those of the other convicts. The diet given them consisted of biscuits, fried mush, grits and brown gravy, syrup, corn bread, cabbage, sweet potatoes, rice, collards, and coffee with sugar. All components of the dietary were of the best quality and were properly cooked. As a preliminary, and to determine if the convicts were afflicted with any other disease, they were kept under observation from February 4 to April 9, two and a half months, on which date the one-sided diet was begun.

Although the occurrence of nervous symptoms and gastro-intestinal disturbances was noted early, it was not until September 12, or about five months after the beginning of the restricted diet, that the skin symptoms so characteristic of pellagra began to develop. These symptoms are

considered as typical, every precaution being taken to make sure that they were not caused by any other disease. The convicts upon whom the experiment was being made, as well as twenty other convicts who were selected as controls, were kept under continuous medical surveillance. No cases of pellagra developed in camp excepting among those men who were on the restricted diet. The experimenters have therefore drawn the conclusion that pellagra has been caused in at least six of the eleven volunteers as a result of the one-sided diet on which they subsisted."

Subsequent confirmation of these results by other experiments may lead to the complete demonstration of the suggested etiology. Such confirmation must, of course, be awaited before the unqualified acceptance of these conclusions.

STATUS OF ENGLISH MEDICAL STUDENTS.

In the issue of the *London Times* for August 25 attention was called by the medical correspondent of that periodical to the danger of the announcement that the British War Office "would be very unwilling to suggest that junior medical students should be discouraged from taking combatant commissions." In its issue of November 3 the *Times* reverts to the same topic with particular reference to the status of medical students since the publication of Lord Derby's recent appeal to the male population. Its comment on this important question is in part, as follows:

"The War Office was willing that medical students in their fourth and fifth years should continue their studies with a view to qualifying as soon as possible, and discouraged the granting of commissions to these men, but the medical profession urged that by allowing the younger students to take combatant commissions the visible supply of medical students would be used up, and the medical schools emptied, so that three or four years hence the number of doctors would be even lower than at present.

"In view of the recent issue of Lord Derby's appeal, which was received by the junior students at the medical schools, the question has again come to the front, and yesterday a deputation consisting of the President of the College of Physicians, the President of the College of Surgeons, the Deans of the medical schools, and the Vice-Chancellor of the University of London waited upon Lord Derby to discuss the matter with him. It was pointed out to him that the medical curriculum extends to five years, and in view of the fact that Lord Derby's letter was being received by students in their first, second, and third year the authorities were anxious to know whether it would not be possible to

exempt them. It was urged very strongly that the medical student would be of much more service to the nation if he continued his studies and qualified as a doctor in three, four, or five years' time than if he joined the Army as a combatant at present.

"Lord Derby, after hearing the views of the deputation, gave his decision on the point in the following words: 'It is the duty of medical students (other than those in the fourth and fifth years of study) to join His Majesty's Forces.'

"According to the statistics published at the beginning of September, the number of students in 10 leading medical schools during the first year of the war was 1891, as compared with the normal total of 2562. The effect of Lord Derby's decision will be, of course, to deplete the number of students still further.

"In his presidential address at the opening of the 102nd session of the General Medical Council recently, Sir Donald MacAlister dealt with the question of recruiting medical students.

"They had it on the highest authority, he said, that within the next few months every qualified man of suitable age who was fit for the work of an officer in the medical corps would be needed. The profession looked to the public to lighten the sacrifices and burdens which all practitioners must endure in these days both by loyalty to the absent and by consideration for those who took their place. The proportion of country practitioners who had been set free for military service was higher than that from the large centres of population. The town doctor, owing to the somewhat loose attachment of his patients to him, feared that they might be alienated if he went into the Army. The Medical War Committees were endeavouring to promote equitable agreements between practitioners who remained on civil duty and their colleagues on active service, and he thought the profession had given abundant proofs that it would not be wanting in duty or in self-denial.

"From the British Dominions and from other countries over 240 practitioners had been registered this year, and it was believed that when certain reciprocity arrangements had been completed, the number from Canada would be considerably increased. Although the War Office authorities recognized that the withdrawal from professional instruction of large numbers of medical students, of the first three years, would have a serious effect on the future, they had deemed it inadvisable to discourage junior students who offered themselves for combatant service. It was much to be desired, he thought, that the Army authorities should give clearer guidance on this perplexing question. The result of medical students accepting commissions and enlisting was that the prospective shortage of 250 qualified practitioners per annum which he had mentioned on a former occasion as probable during the coming years would almost certainly be exceeded."

MEMORIAL OF DR. AUSTIN FLINT.

At its meeting on October 15, 1915, the medical faculty of Cornell University adopted the following memorial of the late Dr. Austin Flint, whose obituary notice appeared in the issue of the JOURNAL for October 7:

"Austin Flint, M.D., LL.D., professor emeritus in the Cornell University Medical College, passed away September 22, 1915, in the eightieth year of his age. A student of Claude Bernard and of Robin, he early achieved distinction. Thus, in 1862, at the age of twenty-five, he discovered a substance in human feces which he called stereorin, recognizing it as a derivative of cholesterol. This discovery was awarded honorable mention by the Institute of France. It did not receive full recognition because of an unfavorable pronouncement by Hoppe-Seyler. However, in 1896, stereorin was again discovered, this time by Bondzynski, and given the name of koprosterin. To Flint, however, working with older, cruder methods, belongs the credit of having first isolated the substance in pure crystalline form. Austin Flint was one of the greatest teachers of the old school of American medicine. A forceful orator and skilled experimentalist, he was the first in this country to expound the doctrines of the French school of physiology which in his early life was at the height of its renown. Dr. Flint took pride in being of the fifth generation of noted physicians, his great-grandfather and his father having borne the name Austin Flint, a name which outlives him in a surviving son.

RESOLUTIONS.

ADOPTED by The American Medical Editors' Association, at its recent meeting in New York.

Whereas, The American Medical Editors' Association believe that the principle of the freedom of the press bears unusual force in relation to the medical press, discussing subjects germane to medical progress, and

Whereas, *The Southern California Practitioner* has been indicted by the United States Postal Department because of the publication of an article dealing with the "sex question" which appeared in the issue of March, 1914,

Be It Resolved, That the American Medical Editors' Association express to Dr. George E. Malsbary, Editor of the *Southern California Practitioner*, its confidence and moral support in the pending action.

Be It Resolved, That the American Medical Editors' Association assure Dr. Malsbary of its willingness and readiness to afford him any assistance and support within its power according to the Constitution and By-Laws.

IRA S. WILE,
C. W. FASSETT,
HENRY R. HARROWER,
Committee.

Correspondence.

AN AUTHOR'S CORRECTION.

BOSTON, MASS., Nov. 22, 1915.

Mr. Editor: An editorial comment in the JOURNAL for Nov. 18, regarding an article of mine on the "Midwife Problem" appearing in the same number, states that the article in question "reaches the conclusion that in view of the obvious deficiencies of training in obstetrics in this country, the best method of meeting the needs of the situation is to adopt the midwife system of Europe, placing it, however, under suitable regulation and providing adequate training for those who undertake this work." I would take exception to this as not being a correct statement of the conclusions reached. I recognize the right of the editor to differ with or to criticise opinions expressed in the article, but not to base those differences or criticisms on a misinterpretation.

The article, attempting to deal with the subject broadly, describes the opinions of many workers in this field, and while those opinions may not always be our own, at least, they merit our respectful consideration. In conclusion, it states: "there is a distinct tendency in many quarters to adopt the midwife as an institution after the manner of its conduct in the countries of Europe," a statement of fact, not an opinion that it is the best solution of the problem. Further, the article even questions if it is the most practical solution, as is shown by the conclusion that "our method of government is not adapted to the rigid requirements which the properly regulated midwife demands."

My suggestion for securing for "every parturient the attention commensurate with present-day standards" is not by the establishment of a midwife organization, but rather that the community, coming to realize its vital interest in this problem, adopts the care of its maternity cases in the same manner that it adopts the care of those of its sick who are unable to secure proper care for themselves, not leaving that care entirely to the commendable but often inadequate efforts of private charities.

I would yield to no one in my appreciation of obstetric ideals and I trust you will see the desirability of correcting the erroneous imputation in your editorial comment.

Very truly yours,

A. K. PAINE, M.D.

A READER'S CORRECTION.

BOSTON, NOV. 21, 1915.

Mr. Editor: The BOSTON MEDICAL AND SURGICAL JOURNAL in its last issue published two articles discussing the problem of the midwife and the obstetrical situation in Boston. The paper by Dr. Paine was read before the Chirurgical Society of Boston when I was its president. I, therefore, feel at liberty and that it is only just to him to say that the conclusion which the editorial comment in the same number of the JOURNAL states as Dr. Paine's views is at a variance with the impression his paper made on the Society when he presented it and on me when I read it.

Dr. Paine begins his article by stating that his title is a misnomer and that the midwife represents but a part of the general situation. In his conclusions he definitely states that "our method of government is not adapted to the rigid requirements which the properly regulated midwife demands." His chief conclusion is that "the state should assume the management and control" of poor pregnant women through their pregnancies and confinements, not only because of humanitarian reasons but also because of the civic importance of the subject.

Before sending you this letter I called up Dr. Paine to be sure that I understood him aright and he said that he did not feel that the "midwife system of Europe" was one for us to adopt, but that it could not be lightly dismissed as *all* evil without careful consideration.

My purpose in writing you is to call your attention to the fact that the convictions of the authors towards the midwife problem do not differ so materially as the editorial comment would lead the casual reader to believe.

Cordially yours,

HILBERT F. DAY, M.D.

A QUESTION OF PRIORITY.

MOUNT SINAI HOSPITAL

BOSTON, MASS., NOV. 19, 1915.

Mr. Editor: In reading the interesting article by Dr. J. L. Huntington on "Pregnancy Clinics" in the last number of the BOSTON MED. AND SURG. JOUR., I noticed an inaccuracy which I desire to call to your attention. Dr. Huntington states that "the Boston Lying-In Hospital was the first to establish a real Pregnancy Clinic in Boston in connection with its other work . . . It was started in 1911 and now there are at least three other similar clinics in Boston."

By reference to the published Annual Reports of the Mt. Sinai Hospital of Boston, you will find that the Pregnancy Clinic at this institution was started in 1908, under the name of Antepartum Clinic. The idea was suggested to the staff by Dr. A. K. Paine, and so far as we know it was given practical application for the first time at this hospital. In its early days only a small proportion of the applicants for treatment could be induced to submit to pre-natal examination and treatment, but now the majority are glad to avail themselves of the opportunity. Again reference to the Annual Reports will show that the treatments at this clinic were in 1908, 41; 1909, 41; 1910, 99; 1911, 156; 1912, 264; 1913, 346, and in 1914, 432. The deliveries in the past three years have averaged 350 per year.

From the start the clinic has been run along the lines which Dr. Huntington has developed in his article. In addition to a member of the obstetrical staff, who plans to see each patient at least once during pregnancy, we have a trained social worker who gives a good part of her time to investigating home conditions previous to delivery. Recently we have also inaugurated a system of "follow-up work" which covers special cases demanding particular attention after delivery.

Thanking you for the opportunity for making this correction, I am,

Yours sincerely,

S. A. MOULTON, M.D.,
Superintendent.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-ninth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, Dec. 10, 1915, at 8.15 P.M.

I. Report of Council and nomination of officers.

II. Report of Treasurer.

III. The following papers will be read:

1. Simple Incision in the Treatment of Pyloric Stenosis, by James S. Stone, M.D., Boston.

2. Spasmodophilia: Report of Ten Cases,—Etiology and Treatment, by Fred P. Webster, M.D., Portland, Me.

3. Fermentative Diarrhea in Infants, by Lewis W. Hill, M.D., Boston.

IV. Election of officers.

Light refreshments will be served after the meeting.

F. M. BUCKINGHAM, M.D., President.
RICHARD M. SMITH, M.D., Secretary.

Harvard Medical Society.—Historical club meeting in the Peter Bent Brigham Hospital Amphitheatre, Tuesday evening, December 7, 1915, at 8.15 o'clock.

PROGRAM.

1. "Surgery in London One Hundred Years Ago as Observed by an American Surgeon of the Old School," Dr. J. Collins Warren, Boston.

2. "Florence Nightingale and Modern Red Cross Organization," Dr. Maude E. Abbott, Montreal.

Medical students and physicians are cordially invited to attend.

ERNEST G. GREY, M.D., *Secretary.*

Norfolk South District Medical Society.—Meeting for Medical Improvement, at United States Hotel, Boston, Thursday, December 2, 1915, at 11.30 A.M.

Reader, A. L. MacAusland, M.D., Boston, Mass., for Hjalmar Ahlstrom, M.D., Quincy, Mass. Subject: "Hip Joint Diseases and Injuries."

F. H. MERRIAM, M.D., *Secretary,*
South Braintree, Mass.

Suffolk District Medical Society—Surgical Section.—Meeting Wednesday, December 15, at 8 P.M., at the Boston Medical Library.

Address by Dr. William Rodman of Philadelphia, on "Surgery of Gastric Ulcer."

CHARLES L. SCUDDE, M.D., *President,*
W. J. MIXTER, M.D., *Secretary.*

NOTICES.

War Lectures for the Benefit of the Social Service Department of Massachusetts General Hospital.

On Monday of next week, December 6, Dr. C. A. Porter and Dr. Robert B. Osgood will give at Sleeper Hall, Boston, at 4 P.M., the second of a series of war lectures for the benefit of the social service department of the Massachusetts General Hospital. This lecture will be on the work of the Harvard Unit in the hospitals of France. Tickets, at a cost of \$1.50 each are on sale at Herrick's at 1 Marlborough St., and at the Social Service Department of the Massachusetts General Hospital. Mail orders will be filled by this department. Checks should be made payable to Francis P. Sears, Treasurer, and sent to the hospital. These lectures are in charge of a committee of which Dr. Richard C. Cabot is chairman and among whose members are Dr. Daniel F. Jones, Dr. Roger L. Lee, Dr. Robert B. Osgood, Dr. James J. Putnam, Dr. Richard M. Smith and Dr. Frederick A. Washburn.

Massachusetts Homeopathic Hospital.—Department of Clinical Research and Preventive Medicine, Evans' Memorial.—The Evans' Memorial for Clinical Research is desirous of coming into communication with as many physicians as possible who have used bacterial vaccines in the treatment of typhoid fever for the purpose of collecting statistics concerning the efficiency or non-efficiency of the method as a therapeutic measure. If any who have done this even with only one or a few cases will send their names and addresses, blank forms will be sent to them upon which uniform reports may be made. Due credit will be given to each in any reports that may be published. Kindly address all communications to Dr. W. H. Watters, 56 East Concord Street, Boston.

APPOINTMENTS.

Dr. George Adams Leland, Jr., of Boston, has been appointed associate in surgery at the Massachusetts General Hospital.

Dr. L. G. Rowntree of the medical department of Johns Hopkins University, has been appointed professor or medicine and chief of the department of medicine in the medical school of the University of Minnesota.

At the recent meeting of the Board of Overseers of Harvard College, Dr. Robert Williamson Lovett was elected to the John B. and Buckminster Brown Professorship of Orthopedic Surgery in the Harvard Medical School. The following administrative boards in graduate departments were also appointed:

Harvard Dental School, Dean Eugene Hanes Smith, Charles Albert Brackett, George Howard Monks, William Parker Cooke, William Henry Potter, Amos Irving Hadley, Samuel Tuttle Elliott, George Henry Wright, Leroy Mattheus Simpson Miner; Harvard Medical School, Dean Edward Hickling Bradford, Harold Clarence Ernst, George Gray Sears, David Lynn Edsall, Reid Huot, Robert Babtie Greenough, John Lewis Bremer, Francis Winslow Palfrey, *ex-officio*: graduate school of medicine, Dean Horace David Arnold, Edward Hickling Bradford, Algernon Coolidge, Robert Williamson Lovett, Charles Locke Scudder, Frederick Taylor Lord, Walter Clarke Howe, *secretary.*

RECENT DEATHS.

DR. HENRY CHARLETON BASTIAN, who died recently at Chesham Bois, Buckinghamshire, England, was born at Truro, Cornwall, on April 26, 1827. He obtained his education at University College, London. Later he became instructor and professor of pathological anatomy at that institution until 1857. He then became professor of the principles and practice of medicine until 1895 after which he remained as professor emeritus. He was for many years consulting physician to the National Hospital for the Paralyzed and Epileptic in London and was a prolific writer on neurologic and psychiatric subjects.

DR. THOMAS C. TREADWELL, who died of nephritis on Nov. 18 at Stoneham, Mass., was born in New York City in 1863. He had practised in that city as a dentist for many years. He is survived by his widow.

DR. GEORGE HENRY WILKINS, who died recently at Framingham, Mass., was born at Amherst, N. H., on Dec. 28, 1855. After obtaining his preparatory education at the New Hampshire State College, he received the degree of M.D. from the New York Homeopathic Medical College. From 1883 to 1902 he practised his profession in Palmer, Mass., removing later to Newtonville, Mass., where he has served for the past ten years, as a member of the staff of the Newton Hospital. He was a member of the Massachusetts Homeopathic Medical Society, the Worcester Medical Society and the Springfield Medical Society and was a lecturer at the Boston University School of Medicine. He is survived by his widow.

DR. FREDERICK WILLIAM RUSSELL, a retired Fellow of The Massachusetts Medical Society, died at the home of his daughter in Dallas, Texas, Nov. 20, aged 70 years. He was a graduate of the New York University Medical College in 1870 and had maintained a private hospital, of fifteen beds, for mental cases in Winchendon, Mass., since 1875.

DR. BENJAMIN JOY JEFFRIES died at his home in Boston, Nov. 21, aged 82 years. He had been a noted ophthalmologist and had practised in Boston from 1859 up to the time of his retirement a few years ago. He was a councilor of The Massachusetts Medical Society from 1875 to 1908, and was the orator in 1888. For many years he had been librarian of the Suffolk District Medical Society, holding the office at his death.

The Boston Medical and Surgical Journal

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Original Articles.

NOTES OF A CONFERENCE ON THE MEDICAL AND SOCIAL ASPECTS OF SYPHILIS OF THE NERVOUS SYSTEM.

HELD AT THE PSYCHOPATHIC HOSPITAL,
MAY 27, 1915.

I.

REMARKS AT NEUROSYPHILIS CONFERENCE, MAY 27, 1915.*

BY ABNER POST, M.D., BOSTON.

WE have a very interesting matter under consideration at these exercises today. Syphilis of the nervous system has exercised the ingenuity and careful study of the authors of the papers read. To realize how important a matter syphi-

lis is in the community, one must remember that syphilis occupies the same important place in almost every public institution in the state. Syphilis in the Eye and Ear Infirmary is just as important as it is here. There is surgical syphilis and medical syphilis and internists are devoting just as much thought to syphilitic diseases of the internal organs as the people here are to cerebrospinal syphilis.

The financial aspect of the disease is extremely interesting. This is the only communicable disease where the community demands that the suffering individuals shall bear the expense of protecting the community. The individual with syphilis must pay for his own treatment or go without. We recognize him as an individual dangerous to the public health, and still the only place, practically speaking, where he can get his treatment in a manner to protect the community is in the State Hospital at Tewksbury. That is not of course absolutely true because there are charitable institutions and individuals who are interested in particular cases to whom they give individual help—but as a rule the State makes the individual pay for his own fees and only in that way affords protection to the rest of the community. We take care of smallpox patients, we take care of patients with diphtheria, we spend large sums on tuberculosis patients and very large sums on a very small number of cases of leprosy, but the poor syphilitic must take care of himself. However, things are getting much better. The Massachusetts General Hospital has devoted a separate department to syphilites, with a large out-patient service and a small number of beds, and there is every reason to expect a permanent in-

* Being S. B. I. Contribution, whole No. 122 (1915-23). This and the following constitute a series of papers presented in full or in abstract at a Conference on Neurosyphilis: *Medical and Social Progress*, held at the Psychopathic Hospital, Thursday, May 27, 1915. Previous Psychopathic Hospital Conferences on matters of general psychopathological or special psychiatric interest have been held on *Some Medical and Social Aspects of Mental Disease Due to Alcoholism*, (before the Legislative Committee on Drunkenness), November 24, 1913, and on *Modern Developments in Mental Nursing*, February 16, 1914. These were published in the *BOSTON MEDICAL AND SURGICAL JOURNAL* of December 25, 1913, and September 24, 1914, respectively. Future conferences will deal with heredity, social service, mental hygiene, and other general topics with which the Psychopathic Hospital is vitally concerned, the whole series of conferences being designed to bring out the major medical and social aspects of the syphilitic and psychiatric problem, as it must be faced by the modern state. *Bibliographical Note.* The previous contribution was State Board of Inspection Contribution, whole No. 123 (1915-24) by E. E. Southard, entitled "Advantages of a Pathological Classification of Nerve Cells, with Remarks on Tissue De-complication as Shown in the Cerebral and Cerebellar Cortex," in *Transactions of Association of American Physicians*, 1915.

crease in the ward accommodations in the future.

In the city of Memphis, within a year, they have so arranged matters that a doctor can send a man with syphilis to a hospital and he is received and treated as a matter of course, as if it were any other disease.

Salvarsan is an interesting drug and especially interesting at the present moment when it is becoming somewhat scarce. One must hope that there may be other possible combinations of equal therapeutic value, because it is inconvenient to be dependent on another country with such limited means of transportation as Germany has at present, and the financial aspect of the thing assumes some importance when we consider the real expense. It would seem that if the remedy were absolutely cut off, some of our chemists might be able to produce a remedy of somewhere near the same value which could be used without any special weight upon the financial condition of the State.

The social conditions of syphilis interest me extremely. The social worker has perhaps as delicate a task in attempting to improve the social conditions of the syphilitic family as any social worker has. It is a matter that requires tact, sympathy and patience, and it is a matter which presents most wonderful opportunities for mischief, and some of the earliest attempts at social work in behalf of syphilites were unfortunate.

When the social worker goes into the family of a syphilitic, she must dismiss from her mind any presupposed guilt.

Syphilis is perhaps the only crime in which it is taken for granted that the individual is guilty. Of any other crime it is assumed that he is innocent until his guilt is proven, but socially, morally and physically, we have for generations taken it for granted that the person with syphilis is guilty of some lapse from morality, and one cannot expect that patients who are approached on that basis will always be responsive. It is not strange that stories differ when patients are approached by different individuals, each one convinced that the patient owes his misfortune to his own evil deeds. It is not surprising that patients should refuse to tell the truth when they see a lady come in with a notebook and pencil and they know their own confessions are going to be put down in black and white. I think we owe it to our patients that the recorded history shall not always be absolutely full. There are some things which ought not to be put down in black and white, which do not necessarily contribute to the value of the history; and one must remember that the number of innocents is really very great. Of the innocent infections in which the seat of infection, such as those on the lips or tonsils or fingers is known, there are somewhere near 8-10%. One in every ten or twelve is too large a proportion to be ignored. If you think of 1000 syphilites—and it takes a very short time to count

up 1000 in a hospital of this size,—there are between 80 and 100 innocent infections. If in addition you will consider the individuals who are innocently infected in marriage, the innocent husbands and the innocent wives who are thus infected, and the hereditary cases,—you have a very large number of innocent syphilites. I am not sure that 50%, taking all the different data, is at all too large a percentage for the number of innocent syphilites. And even if the syphilite is not innocent, the suffering which syphilitic parents undergo in seeing their syphilitic children grow up about them is something terrible. There are few doctors who have dealt with syphilites who have not in mind case after case where father or mother has come to talk the matter over, to make sure that the doctor really understands the case. If any class of individuals need sympathy, it is the syphilitic parents. I cannot help thinking of the advice given by his father to a friend of mine: "John, if your friend is in trouble, stick to him; if he is in trouble and it is his own fault, stick to him, for that is when he needs you."

There is one sentence in a textbook on social service in an article on syphilis which states that no matter what the condition of the syphilitic may be, it will always refer back to a venereal source. One might add to that clause that if you will investigate further, you will find an innocent case connected with it also.

I am very anxious not to misstate or exaggerate. Without any regard to numbers, some such statement as this would express my meaning:

The innocents are too many to be ignored.

The immoral are not all lost souls; some of them are to be numbered with those repentant sinners who cause more joy in heaven than those who never went astray:

The innocent and guilty are so mingled that only the All-Seeing and All-Knowing can absolutely separate them:

Many are already suffering the torture of an earthly hell, and it is the function of Social Service to seek and save rather than to judge in a cause of which our knowledge is at best very imperfect.

The percentage of syphilites in the Psychopathic Hospital, according to Dr. Southard, cannot be very different from the number found in the community. There have been a good many attempts to get some idea of the number of individuals who either have or have had syphilis, for syphilis is so chronic a disease that in matters of census-taking "once a syphilitic is considered always a syphilitic." In Paris some investigations by Fournier resulted in a statement of something like 17% in the general population. Dr. Hyde of Chicago made some calculations in which he thought the population of Chicago was syphilitic to the extent of 15% and it is somewhere in that vicinity—between 10% and 20% in all probability, as far as one can get any idea from figures. This is certainly a suf-

ficiently large number; but there is no sense whatever, as Dr. Southard has already said, in talking about 50% of the population being syphilitic. One must keep in mind also in thinking of syphilis, that not all syphilites are equally dangerous. The danger is confined practically to the individual whose syphilis is comparatively fresh and who has external moist lesions, so that the mere presence of a syphilitic is not by any means a source of danger. Syphilis is one of the least dangerous of communicable diseases.

It is natural, right and proper that in such studies as have been made here that the scientific diagnosis should be especially emphasized. If you wish really to draw conclusions which shall be convincing to others, you need the scientific data, but the clinical study of the disease needs to be stimulated. When one hears so many stories of individuals with scientific proof of syphilis in the entire absence of clinical lesions, it seems worth while to accept the statement with a little hesitation, because the clinical signs are not studied as carefully as they ought to be. Notwithstanding that they have been studied for years, it is difficult to feel absolutely sure about the syphilitic character of some of the children of syphilites, and even those with absolutely convincing clinical signs do not all show positive Wassermann.

We may all feel gratified at the interest shown in the meeting today, and as a community we ought to be grateful for the interest added to the study of syphilis by the Psychopathic Hospital.

II.

EXAMINATION AND PROPHYLAXIS FOR SYPHILITIC PATIENTS AND THEIR FAMILIES: METHODS OF INVESTIGATION AT THE PSYCHOPATHIC HOSPITAL, BOSTON, MASSACHUSETTS, 1915.*

BY HELEN M. WRIGHT, BOSTON,

Social Worker.

THE worship of Esculapius and Hygeia, which meant so much to the public life of the Greeks, is reflected today in our modern enthusiasm for health of mind and body. Our public has been aroused and has demanded careful inquiry into methods of maintaining good health and of preventing disease. It is manifesting itself not only through such organizations as the National Committee on Mental Hygiene, American Social Hygiene Association, The National Association for the Study and Prevention of Tuberculosis, and the American Medical Association, but also through public health officers, private physicians, hospitals, and dispensaries, public and district nursing associations, school boards, women's clubs, consumers' leagues, boys' and girls'

scout organizations, popular magazines and other publications, and even through smaller agencies, such as mothers' meetings and settlement classes. Through such forces research is being encouraged and its results brought to the attention of the eager populace.

The history of the development of public health inquiries, from the determining of causes to the study of methods of prevention, points out four directions along which investigations have been projected, namely:

(1) examination, (2) history, (3) treatment, and (4) education, each of which involves first of all the study of causes and relations. The study of the causes of the various stages of syphilis belongs to the laboratory and to the clinic. Relative social histories may sometime make a contribution by showing the patient's reactions to his environment during different stages of the disease—but as yet the social aspect of work with these patients has been confined to the four branches of investigation just mentioned. Each is closely related in turn to the patient, his family, and the community.

In the Psychopathic Department of the Boston State Hospital, where the problem of neurosyphilis is a large one, the physicians and laboratory workers are on the alert for new signs, new reactions, and new conditions found in syphilitic patients. As a basis for thorough consideration of a patient, an effort is made to have every person, admitted to the House or Out-Patient Department, given a clinical examination and a Wassermann test for the blood. In each case, where possible, a social history¹ is obtained. Those patients showing evidence of syphilis or organic nervous disease, are given a lumbar puncture (the spinal fluid is examined). Through this routine use of the Wassermann test, combined with the other means of identification just noted, and with the extensive use of the lumbar puncture, many cases of syphilis and neurosyphilis have been revealed, which otherwise could not have been recognized. In this way, therefore, *examination* is here used as a method of investigation.

The second method, *that of obtaining history*, through clinical facts and social records, has been the earliest one used by the medical profession and the one most generally employed. The nature of the inquiry,—the particular data sought for,—must perforce, change greatly from year to year.

Because of the lack of adequate appropriations from the State, the high price of salvarsan, which places it beyond the purchasing power of most patients, and the great difficulty in securing salvarsan since the beginning of the war, there have been but a very small number of patients treated. This salvarsan treatment has been given chiefly to certain neurosyphilitic patients, who have been chosen as an appropriate basis for study. Here, then, we find our third method of investigation applied in the hospital.

The fourth, above designated as *education*, is

* Being S. B. I. Contribution whole number 123 (1915-20). See footnote to Remarks at Neurosyphilis Conference, May 27, 1915, by Abner Post, this number, BOSTON MED. AND SURG. JOURN., page 867.

developed through the confidential relation between the physician in charge and the patient. He it is who draws for the patient the laws of hygiene which he needs for himself and which will guide him in his relations to his associates. The physician also interprets to the patient's family the significance of the disease in each specific case. Through the reactions of both of these groups, the patients as individuals, and their families as related individuals, research workers should learn something in regard to methods to be employed or not to be employed in the propaganda against the spread of syphilis, and indirectly in the propaganda for sex education.

The ideal of education is also embodied in the research work of the hospital. Any worker who may have contributed to some part of the inquiry already made is urged to collect and classify the data secured, and to draw conclusions therefrom.

The social aspects of each of these four lines of investigation, as used in this hospital, have developed gradually. Social Service was called upon by the medical staff to perform many supplementary duties which at first seemed unrelated to each other. Very soon, however, they assumed the form of a great social need and pointed out a very definite program whereby Social Service championed not only the cause of the individual patient, but also the cause of research or inquiry.

The social aspect of examination, for example, first appeared when some of the following types of cases were referred to the Social Service. The attending physician asked to see the wife and daughter of Mr. X—, a house patient with cerebrospinal syphilis. The wife had been advised to come to the Out-Patient Department, but had refused. It required several letters and visits from the Social Service to locate the family and bring them in for examination. The Wassermann reports were positive for the wife and doubtful for the daughter.

In another case, a child, James, sent to the Out-Patient Department with question of feeble-mindedness was found to have "doubtful Wassermann." After much effort on the part of co-operating social agencies and the Social Service, the three sisters and mother were examined, and the mother was induced to allow James to enter the House for a lumbar puncture. It was found that the patient had cerebrospinal syphilis, one sister had congenital syphilis and the mother had a positive Wassermann reaction of her serum.

Not only was the Social Service called upon to bring in other members of the patient's family,² but often the patient himself had to be visited and urged to return for a second Wassermann, when the first was doubtful. In cases where clinical evidence indicated neurosyphilis, it was frequently necessary for the social worker to convince him or his family, of the importance

of his entering the house for observation and lumbar puncture.

There were many instances also of patients with a syphilitic history, whose children had negative blood tests, but showed a poor physical condition, which suggested the need for observation. These children, when examined at this hospital, were referred to the follow-up system, to be asked to return for further examination at the end of a year or six months, according to the physician's advice.

So many of these duties relating to examination were asked of the Social Service that there became evident the need for a system by which every syphilitic patient known to the hospital should receive the attention of a social worker. In October of 1914, a card catalogue³ of syphilitic patients was introduced, and an effort made to bring to the hospital for examination the patient's spouse, if married, and every member of the patient's family under 18 years of age. A few exceptions were made in certain cases where the patient had a primary infection, and the family had not been exposed. When the patient was a minor, his parents were sent for and his brothers and sisters under 18 years of age.

The work done by this routine system was called "Examination and Prophylaxis for Syphilitic Patients and Their Families."⁴ These patients were not registered as Social Service cases, except in particular instances when the worker, on learning the condition of the patient's home, found it necessary to do more than have the family examined, or give them slight service or advice.

In an analysis made of 2050 admissions to the house from April 1, 1914, to April 1, 1915, there were 329 syphilitic patients. One hundred and eleven of these were already known to social agencies, 41 were aided in various ways by the Social Service of this hospital and 69 others were given oversight by the workers interested in the prophylaxis for the family. Through the efforts of this particular branch of the social work, 107 persons were brought into the Out-Patient Department for physical examinations and blood tests. They came from families representing in total 839 living individuals, 251 of whom were under 18 years of age. The 107 persons examined were chiefly those under 18 years of age. As the need for this particular kind of work grew, it was found that it required the full time of a worker, and through the interest of a philanthropic woman, it was possible on May 1, 1915, to engage a special worker for six months.

Although in this routine way, we are reaching the need for the examination of our patients and their families, that of others in the community at large cannot be met under present conditions, both because of the lack of free clinics and because of the still existing prejudice among the people against reporting at a syphilitic clinic.

when in their minds "there is nothing the matter" with them.

The most natural way to solve this problem would seem to be through the public school physician. If society should think it advisable through the Board of Health or the Public School Board to require the registration of certain physical stigmata, and make a Wassermann test on every child examined, we should then be in a position to know the seriousness and the magnitude of the problem of congenital syphilis.

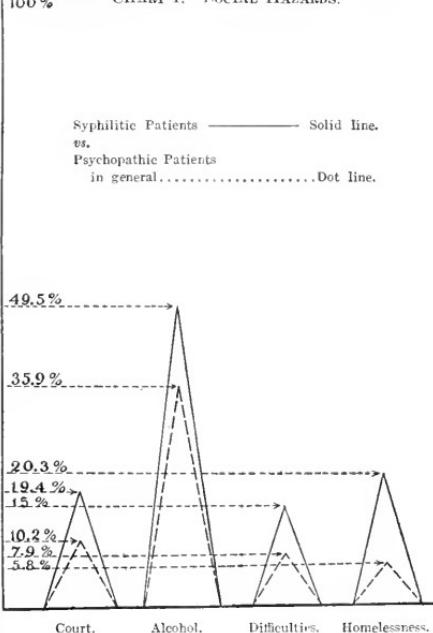
Returning to the second method of investigation, *that of securing histories*, we have found that the importance of the social history has been especially emphasized by this hospital. For the first patient coming to the Out-Patient Department, from any family, a long full history has either been taken by the historian or obtained from a social agency acquainted with the case. But for the families of syphilitic patients it seemed wise to have a special form which would record the particular data characterizing each individual member of the family.

For the sake of uniformity a blank questionnaire was adopted, which called for the identifying information and offered suggestions for the individual's story, these suggestions being grouped under the headings of prenatal and developmental history, illnesses, education, work, recreation and character. An effort has been made to secure particularly his traits of character, special gifts or talents and special defects or delinquencies. These special histories have been obtained for the syphilitic patient's spouse and children, and in cases of minor patients, have included the brothers and sisters and parents. It is safe to say that with the exception of those of the parents of minors, this group of histories represents the social records of persons innocently infected and of persons related by birth to infected patients. The information contained should be of value at some later date.

Patients suffering from the effects of recklessly acquired syphilis, are found chiefly in the *House*, and for them the historian, because of lack of time, has been able to secure but a very small number of outside social histories. This is to be regretted, as it seems particularly important to have a careful and impartial life story of these patients, if one is to obtain any clue as to the particular innate characteristics or social conditions, which contributed to the individual's exposure to the disease.

In the analysis of the 2050 House cases, previously referred to, the small number of records which did have outside social histories showed many discrepancies in the patient's story, especially where he gave a negative history. The social data, therefore, taken from the patient's story as given to his physician only, have probably fallen short of the truth, but a few of the social facts, which this analysis showed in the lives of these 329 syphilitics should be of interest nevertheless. (See Chart I.)

CHART I.—SOCIAL HAZARDS.



Let us call their most common social difficulties hazards, and compare the numbers of those hazards acknowledged by the syphilitic patients with those of some 1200 House patients chosen at random. There were very few of the syphilitic patients who did not have two or more of those difficulties, varying in degree of seriousness. There were 19.4% of them with court records as compared with 10.2% of the patients chosen at random. There were 49.5% of them with an acknowledged history of alcoholism, against 35.9% among the other patients; 15% of the syphilitic patients had a known sex history, which had involved social complications; whereas but 7.9% of the second group were so distinguished. Another hazard which was fairly conspicuous was that of the men and women living apart from their families and alone, designated on the chart under the name of Homelessness. Of these there were 20.3% among the syphilitic patients as compared with 5.8% in the study made of the 1200 House patients chosen at random. If the histories represent these characteristics even in part, it would seem that further inquiry along these lines would be useful to organizations concerned with the alleviation of the social evils.

The *social investigation concomitant with treatment* has been varied and difficult. The most serious problem has been how to get money to pay for the salvarsan when such treatment has been recommended. But very few patients have acknowledged the ability to pay for themselves. In a few other cases, the Social Service

has been able to secure the money from the patients' relatives or from social agencies, already interested. There have been, however, other patients not known to any social agency and not having relatives to help them, who could not have had treatment had not some benevolent individual come to his assistance. This aid, however, has been very difficult to get because the common answer to the request for money has been that provision for the treatment of such patients was distinctly a state problem, and should be financed by a state appropriation. The relief agencies, both public and private, have refused to aid these patients, and private individuals have thought there were more encouraging cases, making demands upon their purses. Added to the above-named types of patients, for whom social service has had to raise money, have been certain neurosyphilitics who seemed in every way socially hopeless. This type has usually been a man living apart from his family, and having a bad record from early life, intermittent employment, if any, and an added loadstone of alcoholism, but who had the disease in a stage, which, to the physician gave promise of certain definite reactions to treatment. For scientific and research purposes it seemed advisable to provide the necessary money.

From the 329 syphilitic patients of last year, 164 were transferred to hospitals for the insane, and 9 died here. The matter of treatment was thereby simplified, but was still a problem. In the light of the difficulties under which treatment has been secured for the patients, it is not surprising that among 51 house patients advised to have salvarsan only 26 received it. Infected persons found in the patient's family, unless they have shown nervous symptoms, have been referred to other hospitals for treatment.

The treatment of these syphilitic patients, therefore, presents a great public problem.

Investigation made by the Social Service along educational lines thus far has been limited. It has endeavored to find the best method of giving instruction to syphilitic patients and their families. So far instruction has been confined almost entirely to families in which the physician has made a first explanation. In this way, but a very small number of persons are reached. Perhaps as the idea of the health center grows, the social service of such an institution as the Psychopathic Hospital will become a community health center so organized that the evening clinic, men's clubs, mothers' meetings, and health conferences and exhibits will be educational centers, where syphilis and allied diseases can be discussed as openly as one now speaks of tuberculosis.

As an educational method of investigation, the keeping of records of these patients, and the collection of data has been considered. As one result, a card has been especially designed for the Prophylaxis System, which shows at a glance

the relation of every member of the patient's family to each other in respect to their age, laboratory tests and social treatment, and providing a ready index to the case file numbers. There were also adopted uniform history blanks for the members of the patients' families coming to the Out-Patient Department, and these have helped to secure a uniform collection of social data for this particular group of patients. Should the public school authorities introduce the special physical examination and Wassermann tests as part of their régime, a portion of these hospital data would be of great value for comparison with the records of the normal children in the schools. But as yet our work is so young that studies made from our data can be used only as sign posts.

Just one more reference to the study of the 329 syphilitic house patients of last year, as an illustration of the educational method of investigation. It gives the classification of these patients according to their diagnoses. (See Chart II.) Those found to have general paresis, cerebrospinal syphilis, tabes and allied diseases, formed 40.4% of the total and 79% of them were men. Those diagnosed as manic-depressive psychosis, senile dementia, drug psychoses, or other psychoses not noted below, formed 16.1% of the whole, of which 54% were women. The alcoholic and the dementia praecox groups were next in proportion, each with a percentage of 11. Among the alcoholics, the male predominated with 54%, while in the dementia praecox group the female predominated with a percentage of 64. There were 9.4% feeble-minded and defective delinquent, 58% being female. The non-insane group was 8.2%—51.8% of which were men. The congenital syphilitic group of 3.7% had 75% boys.

If an analysis of the social histories of these syphilitic patients were made and the data classified and arranged in groups according to diagnoses as above, and if these data were compared with corresponding groups from the histories of non-syphilitics, some enlightening similarities and dissimilarities in character, traits, and conduct ought to be found.

CHART II.—HOUSE PATIENTS.

2050 Admissions—329 Syphilitic Patients.

Diagnosis	Syphilites	Predominating Sex
General paresis	40.4	M. 79
Cerebrospinal syphilis		
Tabes	11	F. 60.3
Manic depressive	16.1	
Senile dementia		
Unclassified		
Alcoholic psychoses	11.2	M. 54
Acute and chronic alcohol		
Dementia praecox	9.4	F. 58
Feeble-minded	8.2	M. 51.8
Defective delinquent		
Not insane		
Congenital syphilis	3.7	Boy 75
Juvenile paresis		

By means of the four general methods of investigation, and their more detailed subdivisions, as used at the Psychopathic Hospital, an attempt is being made to meet the problem of syphilis as it is related to nervous and mental patients, their families and the community. But without broader methods of investigation the efficiency of this work is limited. The need for certain extensive methods, whereby the general state and city institutions will coöperate with the more specialized institutions, has already been referred to. There are other methods which will contribute to a greater knowledge of the disease and its relation to society.

The reporting of venereal disease to State or Municipal Boards of Health, either by statute, or by rule of the Board, is decidedly a step in advance. There are now at least eleven states in the Union which have adopted such a system. Recognizing the fact that public sentiment has not yet asked for it and that the requirements by rulings without penalty may be generally ignored, Vermont has recently passed a law requiring the reporting of venereal disease, by name, sex, age and address, by any physician who treats or prescribes for a case, and providing a penalty not to exceed \$200 fine for failure to report. Through the repeated efforts of the various states and through their failures there will undoubtedly evolve a general system by which venereal disease will be detected, registered and controlled as tuberculosis now is.

Public boards will also provide appropriations whereby therapy for venereal disease will be put within the reach of those who can pay little or nothing for it. Smallpox and tuberculosis have been so dealt with.

All who are promoting social welfare or health measures recognize the importance of securing intelligent coöperation from the people rather than relying entirely upon the enforcement of legislative and other measures.

For this reason public exhibits, clinics, meetings and conferences, which will not only be open to the people, but will seek them in their own localities, will all help in the general appreciation of the problem of syphilis and allied diseases, so vitally related to the family life of our country.

SUMMARY OF METHODS OF INVESTIGATION USED AT THE PSYCHOPATHIC HOSPITAL.

1. A free clinic where a physical examination and blood tests are given.
2. A routine follow-up system for all syphilitic patients, including examination and prophylaxis for the members of their families.
3. A uniform method of recording families of syphilitic patients by card catalogue.
4. A special history blank for the families of syphilitics whereby uniform data can be collected.
5. A social worker who investigates the cases of syphilitic patients and arranges payment for salvarsan treatment, when necessary.

6. Patients with active syphilitic infections have been instructed to safeguard their families.

7. Instruction has been given to patients and their families regarding preventive and therapeutic measures and an effort made to show them the importance of keeping children of syphilitic parents under medical observation.

8. Study of problems relating to syphilitic patients has been encouraged.

SOME RECOMMENDATIONS FOR BROADER METHODS OF INVESTIGATION.

1. A system by which every syphilitic House patient at the Psychopathic Hospital shall have a social history obtained from outside sources.

2. The use of the Wassermann test in suitable cases and a standardized method of recording physical stigmata for all children in the public schools.

3. A public (Board of Health) registration of all persons having a history of syphilis, either by name or by number.

4. A state appropriation provided whereby salvarsan treatment may be used for therapeutic and research purposes.

5. Methods of providing public presentations of scientific data in form which the lay public can interpret for itself.

6. A Health Center, including evening clinics, men and women's clubs, conferences, and exhibits where information under medical supervision, may be given regarding syphilis, and allied diseases, as well as other mental and social hygiene questions.

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² See Appendix B.

³ See Appendix C.

⁴ See Appendix D.

(To be continued.)

BLADDER TUMORS IN THE YOUNG.*

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THE occurrence of bladder tumors in relation to tumors of other organs has been variously estimated as from .39% to .76%. It will readily be seen when studying the series of reported cases that neoplasms occurring in the young make up but a small percentage of the cases.

In the carefully prepared series of Albaran¹ of 252 cases there were but 6 occurring from one to ten years of age, 3 from ten to twenty and 16 from twenty to thirty. In a series of 114 cases

* Read before the American Urological Association at the annual meeting in Baltimore, April, 1915, as a part of the Symposium on Bladder Tumors.

[For the purpose of this symposium the term "young" is interpreted to mean growths occurring in patients under 30 years of age.]

of bladder tumor including cancer from the Mayo Clinic reported by Judd,² there was but one case under ten, which case should not be considered as a primary bladder tumor, being an angioma involving the rectum and bladder. There were 3 cases between ten and twenty and 5 between 20 and 30 years. In 62 cases of tumor of the bladder from the records of the Massachusetts General Hospital from 1879 to February, 1915, there is only one case occurring in a patient below twenty. This was a case of sarcoma in a boy of sixteen. There were 4 cases between twenty and thirty. At the same institution in 129 cases of cancer involving the bladder, there was one case of adeno-carcinoma in a girl of eighteen, one case of epithelioma in a woman of twenty-seven and an inoperable carcinoma of the bladder in a man of thirty, the last case being open to doubt as diagnosis was by cystoscopy. Judd reports a case of carcinoma in a patient of seventeen.

It would seem therefore for the purposes of this paper that the selection of thirty as an arbitrary limit for growths in the young is not unreasonable as by far the greater number of cases occur after that time. This limit falls naturally into a further subdivision by reason of the pathology of bladder tumors, one group including the decades from 1 to 10 and 10 to 20 years during which the growths met with are practically always of the connective tissue and muscular type as sarcoma, fibro-sarcoma, myoma, etc.; the second group consisting of the decade from 20 to 30 years when all types of growth are met with.

The first group, including as it does infants and children and having a different symptomatology and pathology, is the one with which we are principally concerned and really represents bladder tumors in the young.

Group two may be regarded as being made up of sporadic and unusual cases resembling in symptoms and course the lesions met with later in life and are unusual only because they are comparatively few in number.

Bladder growths in infants and children are distinctly rare and little is to be found about them in the text books on pediatrics and the surgery of children. The literature previous to 1900 was more or less scattered and consisted of case reports and a few articles, theses and series of cases. In that year appeared in the *Archives de Médecine des Enfants*³ an original article by Concetti,³ of Rome called, "Les tumeurs malignes de la vessie chez les enfants." He reports a case in a female child of 11 months and gives a general description of the subject based on a study of 41 other cases collected from literature. A later contribution is made in 1905 by Steffen⁴ in a book entitled "Die Malignen Geschwülste im Kindesalter." He also gives a general description of the subject based on abstracts of 32 cases collected from literature. The conclusions reached by these two are very similar

and their tables contain a number of the same cases. Since this time has appeared an Inaugural Dissertation by Hüslér,⁵ Basle, 1905; some references in general papers on bladder tumors and some case reports. From the study of these articles certain points stand out in regard to these growths in children. In the first place the great majority are met with during the first five years of life. In Concetti's series there were 2 during the first year, 10 from the first to the second, 7 from the second to the third year, 5 from the third to the fourth and 5 from the fourth to the fifth. After that, the number falls to not more than one or two for each year up to seventeen.

In Steffen's series, 20 cases occurred from the first to the fourth year and 8 from the fourth to the twelfth. In an analysis by Munwes⁶ of 98 cases of sarcoma of the bladder there were 19 cases below the age of twenty and of these 10 were from one to five years and 5 from five to ten years old. According to the former the great preponderance of cases appearing so early in life is strongly in favor of their embryonic origin. The pathology of Concetti's cases is of interest as bearing out the fact that epithelial tumors are not met with at this age. In this connection Albarran reports 198 epithelial tumors without finding one under twenty years of age.

Concetti's cases were divided as follows:

Sarcoma	13
Lympho-sarcoma	2
Fibro-sarcoma	7
Myxoma	8
Myxo-sarcoma	2
Fibro-myoma	6
Dermoid cyst	1
Undetermined	3

All of these tumors are of connective tissues type and the large majority are malignant. In only 6, the fibromyoma, is there a question of their being benign.

Targett⁶ in an article on sarcoma of the bladder in children states that all these polypoid growths which are attached to the mucous coat of the bladder and variously described as mucous polyp, fibro-sarcoma, fibro-myxoma, myxo-sarcoma and the like should be described as sarcoma. The vast majority of primary growths of the bladder in children are polypoid in type, that is, they are rounded elevations of the mucous membrane with a more or less constricted base or pedicle and often arranged in clusters. Their macroscopic appearance may differ, also microscopically the proportions of fibrous, cellular or other elements may vary but they are pathologically better considered under one group, as clinically they certainly have one point in common, being almost uniformly fatal.

I say almost because of the recent report of a case by Robitschek⁷ of a boy 4½ years of age in whom he had excised a tumor of the bladder two years before; there had been recurrence during that time. The pathological diagnosis was

"telangiectic fibrous polypus." Koll⁸ also reports a simple polyp occurring in a child of 13 months cured by operation. A case reported by Shattuck⁹ is of interest in this connection being the bladder of a 2 year old child showing multiple polypi which were histologically composed of striated muscle. The case was thought to be congenital. However, these cases are potentially if not pathologically malignant.

These tumors always start from the mucous or submucous coats of the bladder, generally from the trigone between the ureteric orifice or near to the so-called neck of the bladder or vesical outlet. They may be single or multiple, generally the latter, with a long or short pedicle, or they may be sessile in character. They vary greatly in size and may have a lobulated appearance like a bunch of grapes and at times may fill the entire bladder.

They tend to recur very rapidly after removal¹⁰ but do not form metastases; they may directly invade the surrounding structures as the vulva, vagina, uterus, prostate or abdominal wall. They have a tendency to infiltrate the mucous and submucous coats not only of the bladder but of the ureter as well, causing considerable thickening of the bladder wall. As they almost always interfere with micturition by blocking the urethra, muscular hypertrophy of the bladder is present, also as the ureteric orifices are often involved the usual chain of back pressure symptoms with dilatation of the ureter and kidney pelvis are met with, subsequent infection often occurring with fatal results. Death may also be due to exhaustion, cachexia or anaemia. The first thing generally noticed is some disturbance of micturition, pain, tenesmus, sudden retention or incontinence. There is often pain in the lower abdomen and what is very constantly described in the case reports as severe straining on micturition. The examination of the urine is at first negative, later signs of cystitis are present and sometimes bits of tumor have been found. As these growths do not tend to ulcerate at first, the characteristic hematuria of tumor is often absent, although when present, particularly following instrumentation, is very suggestive.

The symptoms are often suggestive of calculus, in male children pain being referred to the glans penis and many instances of elongation of the prepuce are recorded due to the attempts to get relief from traction upon the organ.

Irregularities in the contour of the bladder wall have in some instance been detected with a searcher and the diagnosis made in this way; also, incrustations of the growth have been mistaken for stone, as in adults.

In female children the tumor or parts of it may be forced out of the urethra by the straining on micturition combined with the pressure of an over distended bladder and appear as a mass in the vulva; a number of such cases are reported. Here the diagnosis should not be difficult.

Care, of course, must be taken to differentiate it from growths of the vagina or uterus which occasionally occur. Examination under an anesthetic will be necessary and will settle the question.

Occasionally the diagnosis of bladder tumor will be made when the symptoms are due to some extra vesical condition making pressure on traction on the bladder and causing urinary symptoms which can only be discovered at operation. I have found several such cases in the records of the Children's Hospital in Boston. One a tumor of the space of Retzius and perineum, causing marked urinary symptoms; in another a tumor apparently starting from the prostate and involving the side of the pelvis, causing retention. Still another being an infection of the prevesical space.

Diagnosis in the earlier stages on the whole is difficult. Some of the older children it is of course possible to cystoscope under an anesthetic. But in the young male children this can not be done. A child's bladder is readily palpable and a mass above the pubis with pain and urinary symptoms in the absence of congenital structure should excite suspicion.

At this point, I think it will be of interest to give the clinical histories of three of the reported cases which are selected as being typical and illustrate well certain points.

CASE 1. A case reported by T. A. Southam¹¹ in the *British Medical Journal*, July, 1894, of a boy of nine, good health till one year previously when he had an attack of hematuria lasting 24 hours and associated with pain and frequency. This disappeared and he was well for several months when he began to have incontinence at night and increased frequency during the day. Micturition was accompanied by severe straining, pain at the end of the penis and at times a little terminal hematuria. Prepuce very long from traction. Rectal examination slight tenderness at bladder base. A rough area on left side of bladder neck was felt with a searcher but no calculus. A perineal operation was performed as a new growth was suspected. A sessile growth the size of a quarter was removed with a curette from the left side of the bladder. This gave relief for about 5 months when there was a return of the symptoms. A second operation was performed but the patient failed and died 4 months later.

Pathological examination showed a round and spindle cell sarcoma.

CASE 2. Same author and reference. A boy of six years thought to have retention of urine from a calculus impacted in urethra. There was incontinence, bladder distended to the umbilicus and some obstruction to catheterization which felt "rough."

For nine months previously there had been increased frequency with "straining" and later pain and incontinence but no bleeding. Under chloroform the bladder was found greatly distended, a catheter was passed with difficulty but only two ounces of urine obtained which had no effect on the size of the tumor. Irrigation brought away fragments the size of a small pea. On

opening the bladder through a suprapubic incision masses of grey translucent polypoid growth varying in size from a pea to a pigeon's egg presented having very much the appearance of a bunch of grapes. Some of these were removed but the growth was so extensive the attempt was abandoned. The patient died on the second day after operation.

Post mortem. Growth found to be mixed sarcoma springing from the mucosa and submucosa but limited to the bladder, almost the entire mucous membrane was involved. A polyp extends into the urethra, blocking it. The kidney pelvis were dilated.

The first of these cases illustrates how the symptoms may resemble those of calculus. And the second, how a tumor may simulate a full bladder with retention and overflow, particularly where there is obstruction to catheterization still more resembling stone, which is a more common cause of retention in male children than is tumor.

CASE 3. Reported by Sims¹² in the *Medical Record*, April 1896 illustrates another type. The patient was a colored girl of 3 years of age. For three days she had passed no urine except a little that dribbled. For the past 18 months she had much difficulty in emptying bladder and bowels. There was marked straining. Three months ago swelling appeared in lower abdomen. Examination showed a prolapsed rectum and a mass the size of the finger presenting at the vaginal outlet. The bladder was distended. A catheter was passed with difficulty and the abdominal tumor disappeared on emptying the bladder. As the child was in extremely poor condition, no operation was done at that time. Ten days later the mass slipped back into the bladder of itself and later some of it sloughed off and was passed, after which she was better for a time. Soon, however, obstruction returned and the tumor prolapsed again. Immediate operation was done by dilating the urethra, pulling down the mass and removing it with scissors from the anterior wall where it was attached. The mass weighed 3 ounces and is described as a myxo-fibroma. There is no further report.

Another curious case is reported by Savony,¹³ an infant of 13 months, symptoms of stone, evident pain on micturition, an abscess developed in the abdominal wall, extending from pubes to umbilicus which on being opened discharged urine. Autopsy disclosed a large soft pedunculated tumor occluding the urethra. The urachus had become dilated by back pressure, the abscess connecting through it with the bladder.

The prognosis in cases of tumor in children is extremely bad. In the series of Concetti, the sarcoma, 32 in number, all died. Of the so-called benign cases, 7 in number, 3 died without operation, one of anaemia, one of pyelonephritis and one of uremia, so these tumors were clinically malignant if not pathologically so. Four were said to be cured by operation. One case of Bryant¹⁴ was described as a small papilloma which was removed by the eye of a catheter from a girl 3 years old, said to be well 11 years later. The second case of Gussenbauer,¹⁵ a male patient of

12, no further account except the operative recovery is given; a third, the case of Barth in Albaran's table, a male of 17 showed a growth in the bladder 2 months after operation. These cases are very unconvincing. The fourth reported by Albaran, a male patient of 16, said to be well 2 years after the removal of a long pedicled polyp described as a fibro-myoma. The case from the Massachusetts General Hospital records may also be cited, a boy of 16 from whom a fibro-my-o-sarcoma was removed. Well one year after operation, no further report.

Of Concetti's cases, 19 were operated upon, of these 9 died of rapid recurrence, 3 of peritonitis, 2 of shock, the others of infection of the urinary tract, cachexia, etc.

The operative measures were suprapubic cystotomy, perineal cystotomy and in female children dilating the urethra, pulling down the tumor and either ligating or curetting the growth away. The latter procedure being followed by rapid recurrence.

To sum up, vesical tumors in children are a very great rarity. The great majority appear before the fifth year. They are of the connective tissue type and are clinically and pathologically malignant except in rare instances. Difficulties of micturition are generally the earliest symptom; in the absence of stricture they should excite suspicion. Straining is common. Early diagnosis and operation offer the only hope of recovery. With the more exact means of diagnosis now at our command it is to be hoped that this can be accomplished.

In regard to the second group of cases occurring in the decade from 20 to 30 years of age: During this period both epithelial and connective tissue types are met, in 16 cases from Albaran's table between these ages, 8 were epithelial and 8 were connective tissue type. The sex distribution is interesting here, there being 11 male and 5 female. Of the 8 epithelial growths, 7 were male and 1 female. Of the connective tissue type, there were 4 each. These coincide with the cases occurring late in life in which the epithelial types predominate and males are affected about 3 to 1. In the connective tissue growth in children the sexes are affected about evenly.

In the series of 114 cases from the Mayo Clinic, only 5 occurred during this decade. In a paper from the same clinic entitled "Results in the Treatment of Tumors of the Urinary Bladder,"¹⁶ I found the report of 4 cases aged 20, 22, 27, and 29 which were operated upon and all have since died.

Of the 62 cases of tumor from the Massachusetts General Hospital records, there were but 4 during this period. All of these made operative recoveries, in 3 the further history is unknown. The fourth case, a woman of 29, from whom a tumor size of a walnut was removed through the urethra, died 13 years later of tuberculosis of the lungs. Unfortunately there was no pathological report on the specimen, but the clinical history suggests papilloma.

In a series of 24 cases of tumor of the bladder, Pilcher¹⁸ reports one case of a girl 20 with recurring malignant disease of the bladder, apparently successfully treated with the D'Arsonval current. Bremnerman¹⁹ reports a case of 24 years of age in which the papilloma was successfully treated by fulguration.

There are occasional other cases reported, but they are not very common and the results of treatment in the majority have been highly unsatisfactory.

Before closing, I wish to say a word in regard to the occurrence of cancer and of cancer of the bladder in the young. Hadda²⁰ in an article entitled "Das Blasencarcinom im jugendlichen Alter (unter 20 Jahren)" gives the following. Of 7330 cases of carcinomas involving all locations only 31 or .42% occurred in individuals under 20 and 181 or 2.57% between 20 and 30. Of 5006 cases of carcinoma 48 or .96% were of the bladder and none were under 20 years of age.

In this connection the following from the Massachusetts General Hospital records is of interest. In 129 cases of carcinoma of or involving the bladder, I found one case of adeno-carcinoma of the rectum in a girl of 17 which had invaded the bladder secondarily. This of course is not to be regarded as a bladder growth, but is young for the occurrence of cancer.

Another case of primary cancer in a girl of 18 which was described by the pathologist as epidermoid cancer, which I think is of sufficient interest to put on record. She had profuse hematuria for 8 weeks. Cystoscopy showed a sessile tumor on the posterior wall of the bladder the size of a grape. The patient was very anemic, so much so that a preliminary direct blood transfusion was done. This was followed in 3 days by a transperitoneal cystotomy August 2, 1912, with removal of the tumor, including the entire thickness of the bladder wall. She made a good operative recovery. Note one year later, September 24, 1913, says well for 6 months, for last 6 months loss of weight and strength. General examination negative except for 3 months' pregnancy. Cystoscopy showed normal bladder, some urinary frequency. April, 1915, patient states that she went through pregnancy successfully, no trouble except for occasional pain in suprapubic wound.

Between the ages of 20 and 30, I find 2 cases. One a woman of 27 who died 13 days after a curettage of the bladder done as a palliative measure. The pathological diagnosis was epithelioma.

The second was a man of 30 who had an inoperable cancer of the bladder, diagnosis was made by cystoscopy and rectal palpation which showed a hard mass at bladder base. This case is open to doubt as there was no pathological examination, but the case was clinically malignant.

A case of carcinoma occurring at the age of 17 is reported from the Mayo Clinic but no details are given.

It will be seen that cancer of the bladder under 30 is a very rare condition.

On the whole, tumors of the bladder occurring in the young, while fortunately rare, are nevertheless when met with, most unsatisfactory both from the standpoint of diagnosis and treatment.

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A STUDY OF KROENIG'S Isthmus in PULMONARY TUBERCULOSIS.*

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THE object of the following study was to determine, if possible, what clinical significance there might be in the disparity of physical signs at the apices as bearing on tuberculous lesions. In studying frozen sections of human subjects, Fetterolf and Norris¹ found a distinct difference in the apices of the lungs, the right being regularly less developed. They concluded that this difference was due to encroachment of the large blood vessels of the neck and the relation of the trachea. They found moreover that this difference occurred in both right and left handed individuals and in the absence of any discoverable pathological changes in the lungs. It seemed of interest therefore, to make a special study of the physical signs at the apices in the presence of tuberculous lesions, keeping these anatomical differences in mind, for the reason that more or less diagnostic significance has been ascribed to disparity of physical signs, especially that of the apical percussion fields. The literature of the subject is probably so familiar as to make the citing of references superfluous. It might be of interest, however, to recall that Bonney² mentions instances where the apical percussion field on the right side was distinctly contracted without any discoverable tuberculous changes on that side. It might be pertinent to refer here also to Kroenig's later views regarding nasal obstruction and consequent "collapse induration"³ as a cause of altered physical signs at the apex.

The material for this investigation consisted of 129 clinical cases admitted to the Barlow Sanatorium since May, 1913, and of 21 controls, with four exceptions pupil nurses who had been examined carefully as a matter of routine when entering upon their service at the sanatorium.

* Read before the clinical section of the National Association for the Study and Prevention of Tuberculosis, held at Seattle, January, 1915.

In the case of the pupil nurses it would be safe to assume that they were well on admission to the training school of a general hospital. They had moreover been able to perform their duties for a period of one year or more without impairment of health. They cannot be accepted as absolute controls, naturally, for the reason that a previous infection with tubercle bacilli cannot be positively excluded. Those in whom a tuberculous implantation seemed at all probable were not considered.

In making these studies, the determination of Kroenig's isthmus was selected as the index of any existing disparity, because the difference could be recorded graphically and the figures in centimeters noted on the case charts. In this way the results obtained in a series of cases could be tabulated more readily, for the sake of comparison. Kroenig's method was given preference over Goldscheider's because of less difficult technic and consequent greater accuracy. The measurements in the clinical cases were all made at the time of the first physical examination after admission. The area of transmitted pulmonary resonance was outlined with skin pencil as far as the clavicle in front and the spine of the scapula behind. These outlines were transcribed as accurately as possible on the case charts and the actual measurements in centimeters noted. In those cases where on account of considerable retraction of the apex the isthmus was obliterated and the area of pulmonary resonance did not reach the border of the trapezius muscle, the isthmus was noted as "O," regardless of the highest point at which pulmonary resonance could be noted.

For the sake of convenience in studying the results, the cases were divided into groups. The first group comprises cases with predominant right sided lesions, the second group, cases with predominant left sided lesions, and the third group cases with more or less extensive bilateral lesions. Taking up the first group we find that out of 44 cases with predominant right sided lesions, the isthmus was narrower on the right side in 43. In three cases there was complete obliteration of the isthmus on account of retraction of the lung. In 18 cases with predominant left sided lesions the isthmus was narrower on the left side only in 4, and in these there was retraction of the lung with complete obliteration of the isthmus on account of extensive cavity formation. The third group composed of 67 cases with lesions distributed fairly equally over both sides showed narrowing of the isthmus on the left side only in one case, here due to an old fibrous lesion. We find, therefore, that out of 129 clinical cases the isthmus was narrower on the right side in 123 or 95.35%.

Among the 21 controls we find a narrower isthmus on the right side in 18 or 86.6%. On account of the disproportion of controls to clinical cases these results must be interpreted carefully.

Of the series of clinical cases four died at the sanatorium and came to autopsy. It will be of interest to compare the clinical findings with the anatomical changes and to study the relation of both to the physical signs at the apices. In order to bring out these features more distinctly, the autopsy findings in these four cases have been considered more in detail.

CASE 1. No. 613. Isthmus right side 2.5 cm.; left 5 cm. *Clinical Diagnosis:* Disseminated general miliary tuberculosis; chronic tuberculosis with cavity, right apex. *Necropsy:* anatomical diagnosis; disseminated miliary tuberculosis both lungs; chronic tuberculosis both upper lobes; left apex fibrous nodule retraction and puckering of pleura, adhesions; disseminated miliary tuberculosis upper and lower lobe. Right lung: disseminated miliary tuberculosis upper and lower lobe; fibrocaceous consolidation apex with medium sized multilocular cavity, adhesions and thickening of pleura.

CASE 2. No. 641. Isthmus right side 4 cm.; left side 7 cm. *Clinical Diagnosis:* Fibrocaceous tuberculosis both lungs, extensive thickening and adhesions of pleura; cavity right apex; cavity or recent consolidation left upper. *Necropsy:* anatomical diagnosis: fibrocaceous tuberculosis involving nearly all of both lungs. Left lung partial consolidation of upper lobe, with three areas of marked consolidation, no cavities, no adhesions. Right lung: dense adhesions, fibrocaceous tuberculosis consolidation of upper lobe, with medium sized multilocular cavity at apex; marked infiltration of lower lobe, with fresh area of consolidation and two small cavities.

CASE 3. No. 648. Isthmus right side 0, left side 5 cm. *Clinical Diagnosis:* Fibrocaceous tuberculosis right upper lobe with cavity, infiltration right lower lobe; infiltration and partial consolidation of left upper lobe. *Necropsy:* Anatomical diagnosis: Left lung, fibrocaceous consolidation apex, small cavity, old adhesions; lower lobe, infiltration and small fibrous nodule near apex. Right lung, extensive adhesions, markedly thickened pleura, fibrocaceous consolidation, upper lobe, marked induration apex, medium sized cavity, showing fibrous wall and trabeculation; fibrocaceous consolidation, middle lobe and apex of lower lobe, with small cavity, lower lobe.

CASE 4. No. 696. Isthmus right side 0, left side 4.5 cm. *Clinical Diagnosis:* Fibrocaceous tuberculosis both lungs; cavity both apices. *Necropsy:* anatomical diagnosis: fibrocaceous tuberculosis involving nearly all of both lungs. Left apex large multilocular cavity, adhesions and thickening of pleura. Right apex: large multilocular cavity, adhesions and thickening of pleura.

A study of the autopsy findings shows therefore, that although in all of these four cases there were distinct lesions at the left apex, there was not a corresponding change in Kroenig's Isthmus on the left side.

The findings in both the clinical cases and autopsies would justify the belief, therefore, that in most instances the differences in measurements of the apical percussion fields could not be due to tuberculous changes alone. It would

be difficult to explain the almost constant narrowing of the isthmus on the right side regardless of the side of more extensive lesions. It may be granted that implantation does occur more frequently on the right side, at or near the apex. Some of the causes for this predisposition have been cleared up by Baemeister's experiments upon animals. It is only reasonable to assume that some changes at the right apex are the result of former tuberculous implantations, the lesions having become healed, and being no longer active at the time of observation. If this were true however in all cases, we ought to meet with corresponding changes more frequently on the left side than we do, especially in the presence of more extensive or predominant lesions on the left side. It is exceptional to find lesions limited to the right side in active cases, (in our tabulations the cases were classified only as to predominant lesions), infection usually extends to the left side quite early in the course of the disease and greater portions of the left lung may become involved while the process on the right side may become quiescent or fully arrested. Under such circumstances it would be reasonable to expect changes at the left apex more frequently, assuming that such changes do occur secondarily as a result of tuberculous inflammation. It is to be noted also that the disparity of the isthmus was no more frequent relatively in open active cases than in active, and only slightly more frequent than in controls. It is only in cases with very extensive lesions and marked contraction of the lung that there was a corresponding narrowing of Kroenig's isthmus on the same side.

TABULATION OF RESULTS OBTAINED FROM MEASUREMENT OF KROENIG'S ISTMUS IN 129 CASES OF PULMONARY TUBERCULOSIS AND 21 CONTROLS (NORMAL INDIVIDUALS).

	ISTHMUS NARROWER	ISTHMUS SAME	
	Right Side.	Left Side.	Both Sides.
Cases with right-sided lesions	44	43	1 0
Cases with left-sided lesions	18	14	4 0
Cases with bilateral lesions	67	66	1 0
Total number of cases	129	123	6 0
Controls (normal individuals)	21	18	1 2

NOTE: Among the controls the difference in measurements of Kroenig's Isthmus varied from 0.5 cm. to 4 cm.

In view of our findings the conclusion might be drawn therefore: that unless the disparity of the apical percussion field, as expressed in terms of Kroenig's isthmus is very marked, it does not necessarily point toward tuberculosis of the corresponding side; that such disparity is also of much less significance on the right side than it is on the left; and that in most instances the disparity of the apical percussion fields is simply due to anatomical changes, unrelated to tuberculosis.

LITERATURE.

- ¹ Fetterolf and Norris: Seventh Report, Phipps' Institute, University of Pennsylvania, 1913, Sect. XVI, p. 29.
- ² Bonney: Tuberculosis, New York, 1906, p. 284.
- ³ Kroenig: Deutsche Klinik, xl, p. 634.
- ⁴ Baemeister: Die Entstehung der menschlichen Phthise, Berlin, 1914.

INTUSSUSCEPTION.

BY WILLIAM E. LADD, M.D., F.A.C.S., BOSTON.

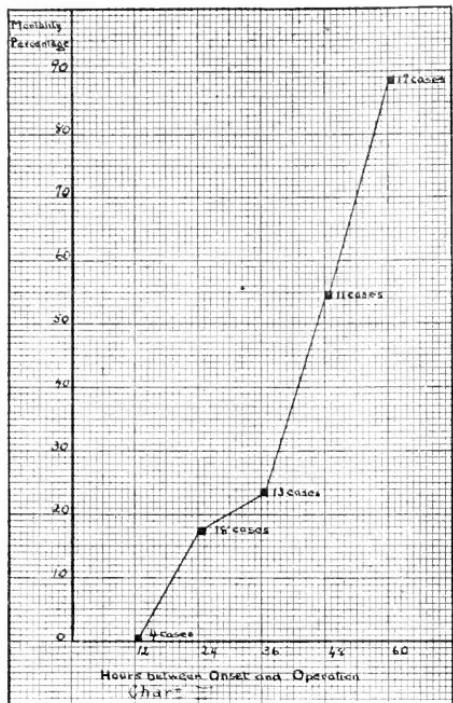
WITHOUT prompt surgical intervention, intussusception is one of the most fatal diseases of infancy and one to which perhaps enough attention has not been paid in this community. The history of the Children's Hospital in connection with this disease is very instructive and interesting.

Prior to 1908, this hospital had had eight cases operated on with one recovery. At the same date, at the Infants' Hospital, there had been eight cases with one recovery, and at the Massachusetts General Hospital, ten cases of infantile intussusception with one recovery. These figures show clearly two striking facts; one, the remarkably small number of cases referred for surgical aid in this community, and the other, the high mortality.

Since 1908, however, the situation has changed slightly. There have been in the Children's Hospital sixty-three cases operated on. Of these, thirty-two have recovered, and thirty-one have died, giving a mortality of just under 49%. Of the last nineteen cases operated on, fifteen have recovered and four have died, showing a mortality of 21%.

This is a considerable improvement to have taken place in seven years, but there is still room for more. But perhaps more striking still are the figures showing the mortality of the operation when performed at a varying number of hours after the onset of symptoms. In this series of sixty-three cases there were four cases operated on at the end of twelve hours with no mortality; eighteen cases operated on at the end of twenty-four hours with three deaths, a mortality of 16.66%; thirteen cases operated on at the end of thirty-six hours with three deaths, a mortality of 54%; and seventeen cases operated on after sixty hours or more show two recoveries and fifteen deaths, a mortality of 88%. (See Chart I.) Bearing these figures in mind, it is obvious, that the most essential requisite for avoiding a high mortality is to make the diagnosis early and resort to operation at once. To make an early diagnosis in intussusception is not as a rule a difficult thing to do providing one is on the lookout for it.

In this series of sixty-three cases, forty-nine occurred during the first year of life; eight during the second; and the remaining six were scattered between the ages of three and nine. One



should be most on the "qui vive," therefore, in infants under two years of age. Another fact to be borne in mind is that intussusception occurs much more frequently in healthy and well nourished babies than in those that are poorly developed and nourished. Occasionally the bowel invaginates in the course of an infectious diarrhoea or during purpura; but such cases are the exceptions, not the rule, and one should remember to be most expectant of finding intussusception in a healthy baby under two years of age. In making the diagnosis, particular attention should always be paid to the parent's story, which in our experience and in that of other surgeons in various parts of the world, is very typical. The mother will usually say that the baby having been perfectly well was suddenly taken with an attack of pain, turned pale, and soon afterward vomited. Following this the baby had periods of apparently being almost well, varied by attacks of pain with crying out and drawing up the legs. A normal looking stool was then passed but after five or six hours a stool composed almost wholly of blood was passed and the baby vomited several times and refused all food. A story of this sort is almost sufficient data for a diagnosis of intussusception. But it is extraordinary how often we still receive babies who have had this typical story and for whom the doctor called has ordered a dose of castor oil or other cathartic and assured the mother the baby would

be all right in a day or two. The baby, of course, gets progressively worse and comes to us *in extremis* at the end of two or three days. The only way I can explain this happening so frequently is that during the first twelve to twenty-four hours, these patients look perfectly well, except during their paroxysms of pain, when peristalsis is active trying to push the mass along. If the doctor sees a healthy looking baby between *pains* and does not pay sufficient attention to the mother's story and does not make a careful examination, he will necessarily miss the diagnosis and by delay remove the best chance for the baby's recovery. During the first twelve hours the physical examination of the abdomen will reveal a mass in the right lower quadrant, under the right costal border in the mid-line at the level of the umbilicus, or in the left upper quadrant according to how far the bowel has invaginated. At this period of the disease the mass is usually easy to feel, owing to the fact that little distention has developed. The mass is usually slightly movable, which is its most typical feature, its size and shape being dependent upon the amount of bowel invaginated and varying considerably. The only time when the mass is hard to feel is when it is situated under the right or left costal border at the end of thirty-six or forty-eight hours, when there is marked distention present. In such cases the x-ray has a limited field of usefulness. After bismuth injection, the intussusceptum will show as a cervix-like projection into the bismuth in the colon below it. Later on when the mass has progressed to the sigmoid or rectum, it has attained such large proportions that it is easy to feel either by abdomen or by rectum in spite of much distention.

It is now after forty-eight hours that the baby's signs and symptoms correspond with the description given in the older text-books of medicine and surgery. The sunken eyes, the distended abdomen, the mass in the rectum, etc. If one waits for these signs, one has waited until the baby's chance for recovery has disappeared.

As to the operation: The incision should be made over the right rectus when the tumor is in the right side of the abdomen. When the tumor is in the left of the abdomen, the incision should be made in the mid-line and run high enough above the umbilicus to enable one to reach the hepatic and splenic flexures easily. The mass having been located, reduction is commenced intra-abdominally by pushing back the advancing point between the middle and forefinger. This is continued as far as it goes easily, when the mass is delivered into the wound and the reduction continued extra-abdominally. The last part of the reduction is always the most difficult, usually due to oedema. By pressure on the tumor, the oedema can frequently be diminished sufficiently to allow the completion of reduction in a ease that appears at first hopeless. Adhesions, frequently spoken of as preventing reduction, as a matter of fact very rarely exist. Clubbe,

who has had perhaps as large an experience as anyone with this disease states that he has never seen any real adhesions. I have seen in one case in which I performed a resection very dense adhesions, but that is the only time I have ever seen any. Oedema, gangrene, and swelling of the mesenteric glands are the three conditions which sometimes makes reduction impossible. In such cases resection has to be resorted to, but when this becomes necessary the hope is forlorn. Clubbe reports one or two successful cases and there are one or two others in the literature. We have never had a successful case here, though several have withstood the operation well only to die a day or so later from a pre-existing toxæmia. The after-care consists in combating shock, irrigation of the colon to reduce toxæmia and proper feeding started soon after the operation.

In any given community where cases are brought to the surgeon late, that surgeon is bound to have a high mortality. The chief problem then, is to educate the general practitioner to be on the lookout for this disease, which is not so rare as has been supposed; to appreciate the signs and symptoms of the disease in its early stages and send the case without delay to a surgeon of experience in the surgical diseases of children. When this is accomplished, the high mortality of the past will be eliminated.

Clinical Department.

SOME UNCOMMON TYPES OF SKIN DISEASE.

By A. J. NUTE, M.D., BOSTON.

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ONE of the best places in the world to see various types of skin disease is in the medical examination of arriving aliens. People coming from all quarters of the globe, often in anything but clean condition, may be found afflicted with many of the diseases not often seen in private practice.

A dermatologist in New York once said in a lecture that dermatology was one of the hardest of specialties, as there were about two hundred skin diseases classified by various authorities and in practice about two thousand modifications. The more one deals with immigrants the more one is inclined to agree with that statement.

The five cases given were selected as being of more interest to the general practitioner than the specialist, for the diseases may be found at any time in the country as well as in the city. The specialist having connection with a large clinic drawing its trade from all walks of life and all races has an opportunity to see cases that would

be so rare as to puzzle his brother in general practice.

CASE 1. Favus of the body. Greek, male, 19 years of age. Scalp negative; finger nails infected and his body in general from shoulders to feet. Favus is a peculiar disease. Recognized as contagious, yet often selecting certain areas and allowing other parts of the body to escape. If the scalp is infected one should look over the finger nails with care and vice versa, as it is usually found in a class of people who do not consider it impolite to scratch their heads at any time or in any place. Nevertheless, it is often found in the head and the nails free. To find it over the body I believe to be rare. This case evidently started in the hands and was one of the unusual cases that spread over the parts of the body protected by clothing and left the scalp free. Later this case developed symptoms of intestinal irritation due to the achorion Schönleinii getting into the rectum.



CASE 1. FAVUS.

CASE 2. Blastomycosis fungoides. Native of Poland, between 25 and 35 years of age, laborer; in general, well developed and nourished. Both hands and elbows involved. On first examination this case closely resembled either verrucous tuberculosis or vegetative syphilide. Under the microscope, the true nature appeared in the large number of yeast plant fungi present. The lesion presents very little pus, being mostly scar tissue and crusts. The violet or lilac color described by many writers was missing in this case.

Why certain yeast and mould fungi are pathogenic and others harmless is a problem; also whether

they differ in some way from the ordinary varieties. While these cases often seem to be in otherwise good physical condition, sooner or later it is common to find constitutional symptoms of either tuberculosis, pyaemia, necrosis of bone, subcutaneous abscesses or subcutaneous nodes resembling erythema multiforme.



CASE II.

CASE 3. Pityriasis rosea. Russian Hebrew, male, 26 years of age, tailor, arrived in Boston on an Italian ship. A very worried man, shunned by the other passengers in the steerage and as a precaution kept in the ship's hospital. Various people had told him he had either syphilis or some other loathsome contagious disease, and when the patient came up for examination he was ready to believe the worst, broken out from his shoulders to feet with pale red, irregularly sized, slight scaling efflorescences. These cases are not uncommon in the larger city clinics but must also exist in other places and might easily be treated for some more serious condition.

A few weeks treatment with weak sulphur ointment resulted in a well and happy man.

CASE 4. Pellagra. Portuguese, male, 58 years of age, laborer, resident of Massachusetts for 25 years, [pityriasis rosea, showing different size and development of lesions.



CASE II.



CASE III.

History of the disease about six years' duration, worse in the summer than in the winter. In the literature one may find the statement that the disease exists south of the 41st degree of latitude, but here is a case that evidently arose in Massachusetts, and in the future we shall hear of more, regardless of climate. The three D's were characteristic, diarrhea, dermatitis, delirium, in addition to marked muscular weakness. As one of his relatives aptly described the case, "He seems to get sun burned in the spring and then has this trouble. Toward fall it begins to get better, but he cannot work."



CASE IV.

CASE 5. Vitiligo. Portuguese female, from the Azores Islands, 62 years of age, housework, and never in the United States before August, 1915.

This case was thought worthy of showing, not so

it has been reported on good authority that in certain regions of Asia they are segregated and kept with lepers. As vitiligo shows no areas of anesthesia, no structural changes in the skin or constitutional symptoms as in the case of leprosy, it hardly seems that the two conditions are likely to be confused. Possibly these cases are held only temporarily as suspects.



CASE V.

Medical Progress.

PROGRESS IN BIOCHEMISTRY.

BY A. EVERETT AUSTIN, M.D., BOSTON.

CARBOHYDRATE METABOLISM.

BASED upon experimental consideration, A. I. Ringer¹ has come to the conclusion that hydroxybutyric acid remnants cannot possibly become oxidized to the ketone stage, the form in which it circulates, because oxidization can be accomplished only by the removal of two atoms of hydrogen, and in this compound there is only one available hydrogen atom. Therefore the ability of glucose to check acid intoxication in the normal individual is based upon its ability to unite with that acid and therefore change its structural configuration so as to give rise on further oxidization to non-acetone genetic products. Hence in the sufferer from diabetes, since both glucose and hydroxybutyric acid circulate in abundance in his blood, the important influence in acidosis is probably the failure of that individual to bring about this glucoside union. Hence it seems probable that the failure to accomplish this synthetic condition is at the bottom of all chemical disturbances in the diabetic, such as the loss of glycogen formation, with the consequent hyperglycemia, inability to burn glucose and the disturbances of the oxidization of the lower fatty acids, since all can be explained by the presence of this deficiency.



CASE V.

much as uncommon as because of the unusual bilateral symmetry of the lesions. This condition has existed over twenty years with no apparent cause and the woman was otherwise healthy for her age.

Another interesting fact with such cases is that

Frank P. Underhill,² working on a different line of research and endeavoring to explain the well known fact that suitable quantities of hydrazine salts, administered subcutaneously, induce marked hypoglycemia, with the accompanying reduction in the glycogen content of the liver, has analyzed the blood, liver and muscles of dogs so treated, with results which show clearly that the transference of the body carbohydrate and glycogen to the muscles does not suffice as an explanation of the disappearance of this substance from the liver and the decreased blood sugar content. On the other hand, there are indications, not only that the liver is deprived of this glycogen, but that the muscles also suffer to the same extent, leaving no explanation for the ultimate fate of the disappearing sugar. At least with hydrazine, in distinction from phlorizin, no sugar ever appears in the urine.

Continuing this investigation further, the same author, after subcutaneous administration of hydrazine to rabbits, perfusing the heart with sugar-containing fluids, found no greater loss of sugar with such animals than with those to which the drug had not been given; the problem of the fate of the sugar still remains unsolved.

The effect of inulin on the output of glucose in diabetes has been investigated by Lewis and Frankel,³ who have shown by experimental evidence that inulin administered to phlorinized dogs gives rise to no glycosuria. The effect of levulose on the dog and similar animals is the elimination of a large amount of glucose. Since levulose administered to such dogs is largely excreted as glucose and not levulose, there seems little probability that any appreciable amount of inulin is converted to levulose or to any product which can give rise to glucose in the diabetic organism.

Epstein and Baehr⁴ have investigated the subject of hyperglycemia following hemorrhage which has been previously attributed to the psychic influence, the so-called emotional glycosuria. These authors, however, have discovered that the increased sugar of the blood is a compensatory response on the part of the organism to keep the total blood sugar up to the level commensurate with the needs of the tissues. On account of the diminished blood volume it is accomplished by the increase in the concentration. Similarly, if the total volume of fluid in circulation is not diminished, and when the blood is withdrawn, it is replaced immediately by saline solution, the procentual concentration of the diluted blood rapidly rises to what it was before the removal. In other words, the total sugar in the circulation remains unchanged. We may have both absolute and relative hyperglycemia, and the glycogen only increased when the hyperglycemia is absolute. There is also a possibility that this observation may account for some of the so-called cases of renal glycosuria; such glycosuria might have been dependent upon

an increase of the total blood sugar, and the absence of any procentual increase could be accounted for by the abnormally large blood volume. Hence, in the study of diabetes mellitus it is necessary not only to determine the percentage of sugar in the blood, but also, as far as possible, the total amount of blood in circulation.

Recognizing the fact that the thyroid and parathyroid exert a marked influence on the elimination of sugar as well as metabolism of carbohydrates, Underhill and Blatherwick⁵ have pursued their investigations upon dogs after thyroparathyroidectomy, and soon learned that the average amount of blood sugar following this operation is always low. The reduction begins before there are any convulsions, therefore their conclusions are that hypoglycemia following this operation is neither the cause nor the result of the accompanying tetany, for, although dextrose injections restore the blood sugar to its normal content, they have no effect on the convulsions.

It is therefore suggested that the removal of the thyroid and parathyroid gives rise to two distinct effects, the first being manifested upon the blood sugar regulating mechanism, causing hypoglycemia, the other upon the nervous system, producing tetany. Continuing this investigation, the same authors have shown that calcium is intimately associated with both effects, for injections of calcium lactate will temporarily restore the blood sugar to normal and also abolish tetany temporarily. Furthermore, calcium lactate may play an important part in maintaining the equilibrium of the volume regulating mechanism during normal life.

This subject of the effect of the removal of the parathyroid, the relation of the parathyroid to sugar tolerance and the effect of calcium salts has also been studied by Marine,⁶ who reports that in eight of the ten cases under consideration a marked fall in sugar tolerance was noted after parathyroidectomy, while in two with natural low tolerance limits, the tolerance remained unchanged after the removal of at least three parathyroids. The feature of most interest is that parathyroidectomy does not result in constant glycosuria, nor does the administration of calcium salts seem to modify the altered sugar tolerance of parathyroidectomy.

PIGMENTS OF MILK FAT.

For a number of years a great variety of yellow animal pigments has been given the general term of lipochrome, which recent investigations have shown, near in many instances a close chemical relation, or rather possibly are identical with the carotin, or the yellow pigment of plants.

Palmer and Eckles⁷ have continued this investigation with the following results: The fat of cow's milk is indebted for its natural yellow color to the pigments, carotin and xanthophyll, especially the former, which is a well known

yellow vegetable pigment found accompanying chlorophyll in all green plants. Furthermore, these pigments of milk fat are not synthesized in the cow's body, but are merely taken up with the food and consequently excreted in the milk fat. This is demonstrated by the fact that when cows during the winter receive food poor in these pigments, the total fat, while not necessarily diminished in amount, approaches a colorless condition, increasing with the length of time they are deprived of these pigments in the food, which apparently proves that there is an accumulated store of pigment in the organism of the cow. When, on the contrary, the animal is fed, after this period of restriction, with fresh food, of which green grass contains the greatest portion of pigment, the color immediately returns to the milk fat. Continuing this investigation, they have demonstrated that the yellow lipochrome of the body, corpus luteum, skin and the secretion of the cow, like the yellow pigment of butter fat, are composed principally of carotin, which may have sometimes associated with it some of the lesser yellow pigments. It has been further found that the yellow pigment of the blood serum of the cow is also composed principally of carotin, the widespread hydro-carbon pigment of plants. On the contrary, the blood serum of the new-born calf is free from these pigments. Hence the serum pigment is probably of greater importance in the form of milk fat, body fat and corpus luteum of the cow.

Applying this investigation to humans, the same authors found that the fat of human milk may be tinted by carotin and xanthophyll, the same pigments which characterize the fat of cow's milk. The relative proportion, however, of carotin and xanthophyll, in human milk fat, is much more nearly equal than in the fat of cow's milk. While the colostrum fat of the former is characterized by the same high color as is the fat of the milk of cows, the pigment of the human body fat is identical with the pigment of the milk fat.

In conclusion, by experimental evidence these authors have shown that there is a very close relationship, if not identity, existing between the yellow pigment of milk fat and the urochrome of the urine. For these have the same chemical reaction, showing no lines in the spectroscope. Both can be converted by acetaldehyde into pigments having spectroscopic qualities which are identical with urochrome.

UREA.

Marshall and Davis⁸ have pursued certain investigations to determine the urea content in various tissues of the animal body and the relation of its percentage to that of blood, by the analysis of the tissue before and after injections of large amounts of urea; similarly, analyses of animals whose kidney functions had been interfered with, either with or without the urea in-

jections and from autopsies of nephritis. Their conclusions are that urea is present in all the organs and tissues of normal animals and the urea is approximately uniform with that of the blood, both in normal conditions and when abnormally large amounts of urea are circulating. When urea is injected subcutaneously it circulates to all parts of the body in a very few minutes. The urea is eliminated with great rapidity by the kidneys, with such rapidity that excretion may rise to 16 grams per kilo of body weight per day, and even higher. The rate of urea in normal animals is directly proportional to the concentration of urea in the blood; when the excretion of urea is prevented, the entire amount formed is stored in the body. There is no evidence of its conversion into any other substance.

Fiske and Sumner⁹ have engaged in an investigation to determine the chief site of urea formation in the body from amino acids. It has always been conceded that the liver represents the chief site of urea formation. This has always been open to question because experiments have been only indifferently controlled. The conclusions of these authors, based upon a large amount of experimental work, are that unassailable evidence of the liver's chief part in urea formation from amino acids does not exist. The accumulation of urea per unit of mass in the blood and tissues with intravenous injections of amino acids is as great when the liver and other abdominal organs are excluded from the circulation as when they are in their normal relations. The authors fail to inform us where this transformation takes place.

McLean and Selling¹⁰ have continued the investigations initiated by Folin and Denis on the urea and total non-protein nitrogen in normal human blood. Their conclusions, based upon these investigations, which comprise nine individuals, showed that from 10-23 mgms. of urea nitrogen were found in 100 c.c. of blood, while the total non-protein nitrogen varies from 23-36 mgms. in the same individuals. Hence the concentration of total non-protein nitrogen and that of urea in normal human blood is not constant, but varies within wide limits, according to the various factors,—diet, amount of fluid, etc. Furthermore, there is a close parallelism between the concentration of urea in the blood and the amount excreted in the urine in normal individuals under average conditions. Ambard's coefficient, when computed from results obtained by the method of Folin, varies only between comparatively narrow limits, and may be regarded as constant. In addition, a concentration of the protein nitrogen as high as 22 mgms. per 100 c.c. of blood does not indicate any disturbance in urea elimination unless associated with the relative decrease in the amount excreted. Ingestion of urea does not materially alter the value of Ambard's coefficient, providing sufficient time is allowed for absorption before the examination is made.

ENZYMATIC ACTIVITIES.

As alcohol is used so commonly for the preservation of all pathological specimens and, as it is well known that autolysis rapidly takes place in such tissues, unless strongly inhibited, from the inherent digestive ferment, Wells and Caldwell¹¹ have investigated the strength of alcohol necessary to prevent such disintegration. They found that for complete suppression of the autolytic digestion of liver tissue by alcohol, the actual strength of the fluid added cannot be safely less than 90%. Between 80 and 90% self-digestion may take place, and below 80% of the alcohol autolysis is certain to take place at either room or incubator temperature. For each gram of finely ground tissue at least 10 c.c., or better, 15 c.c. of 96% alcohol must be used for preservation. If such changes are to be fully inhibited this can be more readily accomplished, when not contraindicated, by boiling the tissue a few minutes in alcohol to destroy these enzymes.

As is known, the soy bean contains a very active enzyme which splits urea into ammonium carbonate. This action is specific in that it does not attack any other constituent of the urine.

Van Slyke and Cullen¹² have endeavored to add to our knowledge of this urease and to determine whether it acts by direct contact or by the formation of an intermediate labile compound. If the former were true, the reaction velocity, enzyme concentration being kept constant, should increase in direct proportion to the urea concentration; if the enzyme acts by formation of an intermediate compound with the urea, however, one would expect conditions to be different. So long as sufficient urea were present to keep all the enzyme combined and therefore acting, the presence of excess urea beyond this point would not accelerate the reaction. The excess urea would remain inert, awaiting an opportunity to combine with the enzyme.

As a result of extensive experiments they found that there is actually formed an intermediate compound which acts upon urea.

The former author, Van Slyke, in collaboration with Zacharias, has also studied the influences which retard the action of urease. Such retarding agents were found to be, first, ammonium carbonate, one of the resultant compounds of urea disintegration, which acts largely by increasing the alkalinity of the solution in which enzymatic action takes place. Neutral salts, phosphates and sodium chloride, retard the action of this ferment.

Urea therefore shows its highest activity in the presence of the lowest concentration of phosphates that maintains neutrality. Furthermore, glucose retards enzyme reaction in the same way as neutral salts, an action which is equalled by alcohol in 30% concentration.

Crohn and Epstein,¹³ in investigating the influence of normal and diabetic serum on pan-

creatic amylase, found that even the smallest quantities of serum had a marked stimulating effect on the amylolytic activity of the extract of a dog's pancreas, this increase amounting often to three and fourfold. This power is not diminished by boiling the serum nor by allowing it to remain at 28° C for many hours. This activating power of the serum is lessened by dialysis, while the salts of the serum and the proportion in which they exist in it are largely responsible for this phenomenon.

Sodium chloride has no effect; adrenalin may have a slight positive influence, while lecithin has none. These facts are of great interest because of the duodenal content which, for the amylolytic activity, seems barely sufficient to digest the ordinary daily intake of carbohydrate, but if we increase this power to two to four times by the presence of serum salts, we can satisfactorily explain why starch so rarely appears in the stools and why pancreatic digestion so rarely becomes insufficient for carbohydrate.

Joblin and Petersen¹⁴ have continued their investigations on ferment inhibiting substances. Their present work is devoted to the agencies which restrict proteolytic enzymes acting in an alkaline medium. The result of these studies is as follows:—

Soaps prepared from olive oil, eroton oil, cod liver oil, linseed oil, etc., have the property of markedly inhibiting the action of trypsin and leucoprotease. The activity of these soaps is dependent upon the degree of unsaturation of their fatty acids, and is in proportion to their iodin value. Saturation of the acids with a halogen (bromine or iodine) causes a loss of this property, while soaps of the saturated fatty acids do not possess this characteristic.

The same authors, continuing their investigations, have come to the conclusion that the ferment-inhibiting action of the blood serum is due to the presence of a compound of the unsaturated fatty acids. This conclusion is based upon the fact that when the fatty acid compound is removed from serum, it loses this action and, furthermore, soaps prepared by saponifying the chloroform and ether extract inhibit the action of trypsin also, with a decrease in strength. Anti-enzyme in old sera is probably due to the action of the serum lipase. These experimental results are apparently confirmed by clinical investigations, that is, there is an increase of the serum anti-enzyme in acute infections, such as typhoid, pneumonia, etc.; in chronic wasting diseases such as syphilis and tuberculosis, and in severe anemias such as those accompanying malignant growths; in all but the first of these the demand of the body or the action of toxins causes a marked reduction in the fat deposits of the body. This disappearance of fat, in conjunction with the lowering of the powers of the liver and tissues in general, causes an increase in the unsaturated fatty acids in the blood and thus an increase in the ferment-inhibiting action.

CONSTITUENTS OF THE BLOOD.

Folin and Denis¹⁵ have examined the blood of about two hundred patients at the Massachusetts General Hospital to determine the creatinin and creatin content of the blood, and they have never been able to find any specific creatin retention. They further state that except in extreme conditions of urinary reduction approaching anuria the creatin remains at the normal level. It was found that the human kidneys were able to remove the creatin from the blood with remarkable ease and certainty. The completeness of this excretion is exceeded only by the still more complete removal of the ammonium salts.

Fiske and Karsner¹⁶ have studied the effects of acute destructive lesions of the liver on the ammonia content of the blood. Their object was to learn whether there is any greater interference with the function of the liver in eliminating ammonia, when larger areas were destroyed than is known in human sclerosis. It is probable that the factor of safety in the liver is so great that no such alteration of function occurs *a priori*, at least when the amount of destruction is compatible with life and the results of the experiment were in accordance with this assumption.

Upon perfusing cat's liver from animals which had been poisoned by chloroform, phosphorus and hydrazine, it was found that, in spite of the marked destruction of liver tissue, the reduction of ammonia in the perfused blood, as a result of one hour's activity, was very marked and, by use of a method of oxygenation, the reduction of ammonia content was still greater. To sum up the results, they declare that there is no difference between normal livers and the livers poisoned by the various toxic substances mentioned, in the result of their ability to lower the ammonia content of the blood perfused through them.

Marriott¹⁷ has made a careful study of the blood in acidosis from the quantitative standpoint, employing a newer method for the acetone bodies, in which quantities of blood as small as 1 to 5 c.c. may be employed. He found, in brief, that the blood of normal human subjects and that of dogs, pigs and cattle contain less than 1.5 mgms. of aceto-acetic acid and less than 4 mgms. of oxybutyric acid per 100 grams of blood, the results being expressed in terms of acetone. In acidosis the acetone bodies in the blood are much higher than normal; the highest degree obtained by this author was 28 mgms. of aceto-acetic acid and 45 mgms. of oxybutyric acid per 100 grams of blood, expressed as acetone.

Shaffer¹⁸ has again investigated the normal level of blood sugar in the dog. Special effort was made not to arouse pain or fright in the animal bled. The author declares that, based upon twenty different dogs, in some instances bleedings having been made for a period of sev-

eral weeks and under different conditions as regards food and the state of nutrition, the results varied between 0.02 and 0.065%, and these values could therefore be taken as more nearly the normal limits of the blood sugar content of dogs. Of these results, one-half to one-third greater values are accepted as normal. Shaffer's explanation is that the former large amounts found depended upon emotional excitement of the animal, which appears to produce rapidly a temporary hyperglycemia. The author has agreed that the blood sugar of man can be regarded as varying from 0.06 to 0.11%, and declares that this deficiency is due to lack of emotion, because such blood is always drawn from a superficial vein, and without causing pain in the latter.

Jacobson¹⁹ has made a study of the disappearance of ammonia from the blood in normal and in thyroidectomized animals. This has been determined by the rate of disappearance of the ammonia from the circulating blood after intravenous injections of ammonium carbonate. The liver is left in its normal relations, and the factor of elimination of ammonia through the kidney excluded by ligature of the renal vessels.

The conclusions of these experiments are, that with the kidney excluded from the circulation, ammonia injected into the blood is so rapidly removed that only a very slight excess is present five minutes after the injection.

There is only a very slight difference between the amount of ammonia removed in normal and thyroidectomized animals. Furthermore, this method is not adequate for the determination of liver efficiency (ammonia destroying power), because the rate of disappearance of excess of ammonia from the blood, independent of the liver function, is so great as to render the ammonia destruction of the liver almost a negligible quantity.

Karsner and Denis²⁰ have continued their studies on nitrogen retention in the blood in experimental acute nephritis and have demonstrated that arsenic nephritis shows almost no retention of nitrogen, although studies of urinary nitrogen indicate an increased catabolism. Diphtheria nephritis also, in its early stages, as the former, shows little or no actual nitrogen retention in the blood. In both cases, however, there appears to come a time when the excreting power of the kidney is exhausted and nitrogen accumulates in the blood.

While both the former produce tubular changes, tartaric nephritis shows changes which are more of a glomerular character, and in this form there is the most remarkable retention of nitrogen in the blood. This persists even though the glomerules show almost no change and continues to clear up with the progress of time.

ABNORMAL METABOLISM.

Levene and La Forge²¹ have continued their studies on the pentose of the urine of an indi-

vidual, apparently in good health, by means of obtaining a large amount of the osazone from which they determined that this sugar belongs to the xylose group. This conclusion is based upon certain indirect evidence, such as the increase of its optical rotation on standing and, upon distillation with hydrochloric acid, the sugar content produced a large quantity of furfural; that by oxidation experiments the urine pentose has the structure of a keto pentose.

Raiziss, Dubin and Ringer²² have made some special studies in endogenous uric acid metabolism in cases of psoriasis; based upon inconclusive evidence, persons affected with this disease have been supposed to have an abnormal metabolism of uric acid, but these authors considered such patients normal as far as uric acid metabolism is concerned because the various stages of the disease did not seem to vary the uric acid excretion in any way. However, in the course of these studies, it was found that these patients improved remarkably when kept on a meat-free, low protein diet. Their summaries in conclusion are that the uric-acid elimination, based upon ten individuals was much lower than was previously reported in the latter. Furthermore, different individuals under the same conditions of diet and rest, eliminated practically the same amount of uric acid per day, which is increased equally by work and high protein intake.

On placing these individuals on a practically nitrogen-free diet, which was at the same time free from nuclein, after the vegetable diet period, the uric acid amounted to about half of what it was on the vegetable diet (0.040 grams per day). Finally on giving milk, eggs and zwieback to the extent of 12 grams of nitrogen per day to one of these patients immediately following the nitrogen-free diet, the uric acid output rose but slightly (0.05 grams per day), but when the vegetable diet was resumed, the uric acid nitrogen elimination rose again to its former level (0.44 grams per day).

Bergeim, Stewart and Hawk²³ have made some careful investigations of the metabolism of calcium, magnesium, sulphur, phosphorus and nitrogen in acromegaly. The patient was a young male, a native of Russia, who presented all of the characteristics of this peculiar disease. Their conclusions are, that there is a distinct retention of calcium, magnesium and phosphorus, which is unaccompanied by corresponding changes. In general, metabolism is normal, as evidenced by a practical balance of nitrogen and sulphur. It is, therefore, concluded that there is a primary disturbance in the metabolism of the mineral elements mentioned with the probable formation of new bony tissue. The distribution of elements between urine and feces shows no abnormal variations.

The same authors have prosecuted a similar study in calcium metabolism after thyroparathyroidectomy. The patient, on account of the difficulty in respiration, had had first a trache-

otomy and then the removal of the entire thyroids as well as the parathyroid glands. The patient on account of his condition was fed upon a fully liquid diet. There was found but slight retention of calcium during a ten-day period. The urine excretion was as low as 0.013 grams per day on a daily ingestion of 1.673 grams of calcium. During this period, however, but slight increase was observed in the calcium content of the blood. No symptoms of tetany were discovered in the patient who survived the operation thirty-nine days. The low urinary and blood calcium values are taken to show deficient absorption of calcium, which may bear some relation to the decreased gastric secretion after parathyroidectomy. The non-occurrence of tetany was considered due to the high calcium intake and to the development of a compensatory mechanism in which the pituitary body may play a part.

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CASES OF INFECTIOUS DISEASES reported to the Boston Board of Health for the week ending Nov. 23, 1915: Diphtheria 61, of which 11 were non-residents; scarlatina 43, of which 10 were non-residents; typhoid fever 9; measles 31; tuberculosis 54, of which 2 were non-residents. The death-rate of the reported deaths for the week was 14.04.

Harvard Medical School

MEDICAL EXPERT TESTIMONY AND LEGAL LIABILITY.*

MR. JOHN LOWELL presided and outlined the two subjects for discussion.

MR. JUSTICE HAMMOND of the Supreme Court of Massachusetts: The difficulties of the doctor in court are admittedly great, owing especially to the form of procedure known as the "hypothetical question." Failures on the part of doctors as witnesses are of two general classes:

- (a) The doctor fails to realize how completely his reputation depends on his honesty in court. Further, he does not understand his relation to the lawyers who employ him.
- (b) The doctor allows personal theory or a desire to be consistent to give his statements an inexcusable bias.

MR. WILLIAM G. THOMPSON:

A. *Evidence.* The essential differences between the legal and the medical point of view are:

- (a) Unlike science, the practice of law deals with practical controversies and is, therefore, not disinterested and impartial.
- (b) The determination of justice not being assigned to witnesses or advocates,
 - (1) Witnesses are responsible only for answers to questions.
 - (2) It is a violation of advocate's duty to advance evidence against his client's case.

B. *The Special Province of the Expert Witness* becomes evident by noting:

- (a) Ordinary witnesses are expected to give facts without any inferences.
- (b) Expert witnesses are expected to give the facts *plus* such inferences as their special training warrants them in making.
- (c) Expert witnesses may even give such inferences as they are qualified to make from facts outside their own experience.

C. *The Doctor's Legal Responsibilities as a Witness.*

- (a) Diagnosis. Here the attending physician is usually responsible. Caution against being deceived by patient's conduct during convalescence. Doctor thus becomes witness to nothing but his own credibility.

- (b) Prognosis. The court is concerned not with what is possible, but with what is probable.
- (c) Causation. The court is concerned only with immediate real and substantial causes. Remember two facts: (1) There is a difference between *post hoc* and *propter hoc*. (2) The intentions of the agent are of no import in the actual causation.

D. *Two Essentials of Preparation of Case are*

- (1) In conference with the lawyer before the trial the physician should ask and find out definitely what questions he is to be asked. If these questions cannot be answered honestly to the satisfaction of the lawyer, this is the time to withdraw from the case.
- (2) Review all your reasons for thinking as you do.

E. *Conduct in Court.*

- (a) No one is allowed to take away a witness' right thoroughly to understand a question before he answers it. If in a hypothetical case expert desires further data, he may ask for them.
- (b) Free use of "I don't know" is indicated when you don't know.
- (c) Do not hedge, however, on what you do know.
- (d) Make reply quickly.
- (e) Look out for the lawyer's trick of getting the witness to give assent to a slight misquotation of some one of his previous statements.
- (f) Keep your temper.
- (g) Confine your answers to the questions put to you; and point out your rights where categorical answers would be misleading.

F. *Fees for Expert Testimony.* The settling of the amount of the fee is purely a matter of negotiation between physician and lawyer. The attending physician ordinarily makes no extra charge. The following rates conform with ordinary customs:

- (a) For examination of patient \$10 to \$25 is not unreasonable.
- (b) Conferences with lawyer at double the ordinary office call.
- (c) Expert witness ordinarily charges \$25 to \$100 a day for court work.

Two cautions are suitable:

- (a) Don't hesitate to state financial arrangements if questioned in court about them. Anything else than direct frank statements are detrimental.
- (b) The expert witness should send in his bill before the trial, so that he may protect himself against the charge of being financially interested in the outcome of the suit.

G. *Lawful Requirements of Medical Witnesses.*

- (a) No other demand than testimony *before the court* can be made by any person or agency.

* Report of Lectures on the Medico-Legal Responsibilities of the Physician, given at the Harvard Medical School, Friday, Nov. 12, 1915.

- (b) A doctor's personal notes on a case may be required by the court as evidence, whether or not the doctor is retained by either side. In such a case the physician is legally entitled to no more than a lay witness.
- (c) A physician may be required to testify as an expert without any legal claim for special recompense, but in such event cannot be forced to read up or prepare the case. Therefore more than his offhand opinion on the case as presented to him in court cannot be required.

DR. COURTNEY:

Adherence to the following rules would improve expert medical testimony 100%.

- (a) The witness must have accurate and full knowledge of the patient's history as well as present condition. He is not going to be examined in what he does not know unless it be something directly concerning the case.
- (b) An expert who cannot testify in simple terms will find the effect of his testimony soporific only.
- (c) It is not the province of the medical expert to attempt to fix the blame.
- (d) Witness should take his tone from the court. Flippant self-assurance and spurious ease are easily recognized. Attention should be given at all times to the jury, and the voice and temper must be controlled.

MR. A. D. HILL: *Liability of Practitioners.*

The law will not hold liable a well-equipped careful man of reasonable skill, who makes use of such tests and appliances at his command as are reasonable in the particular situation in which he is placed. It is apparent that in the long run the best of men will at some time or other fall below his usual standard. Nevertheless damage suits are based on other grievances than the occasional human failings of physicians.

The main precautions to be taken are:

- (a) Have full records, including explicit statements made to patient in regard to what you could not undertake to accomplish. Incomplete records are the most frequent cause of disaster. Note that charity patients enjoy liability law.
- (b) Exercise greatest care and circumspection.
- (c) Insist on your orders being obeyed; otherwise it is prudent to refuse any responsibility.
- (d) Insurance.

The medical profession should be clearly aware of the temptation in legal procedures to protect fellow practitioners against justice. This temptation is a very subtle one, but it is not hard to see the eventual wrong that professional protection does in lowering the ethics of the medical profession.

A. COOLIDGE, M.D.
A. GREGG, A.B.

MEDICAL MEETING IN THE AMPHITHEATRE OF THE PETER BENT BRIGHAM HOSPITAL, TUESDAY EVENING, NOVEMBER 23, AT 8.15 O'CLOCK.

EXHIBITION OF CASES.

DR. HARVEY CUSHING: A case of Hodgkin's disease showing a very chronic clinical course.

DRS. A. J. HAMILTON AND J. E. ASH: A case of Hodgkin's disease showing an acute clinical course, with pathological specimens.

Paper of DR. J. L. YATES, of Milwaukee,—

HODGKIN'S DISEASE AND CLOSELY RELATED AFFECTIONS: THEIR TREATMENT BASED ON ETIOLOGY AND MORBID PHYSIOLOGY.

Hodgkin's disease must be classified with the infectious diseases. The microorganism responsible for the pathological processes characteristic of this malady may gain entrance to its host through any chronic lesion, either of the skin or of the mucous membranes.

The investigations carried on by Dr. Bunting in the pathological department of the University of Wisconsin and by Dr. Yates in Milwaukee, have shown that there are three diagnostic criteria for this disease: the histological, the hematological and the bacteriological. As yet the histological studies have shown no fully established pathological entity. The blood picture, however, is very characteristic. It constitutes the most reliable single diagnostic measure, and it forms the best guide for treatment. In following the results of therapeutic measures it is invaluable. All of the animals which were injected with the microorganism isolated by Bunting and Yates showed the characteristic blood pictures. The agent responsible for Hodgkin's disease is a diphtheroid organism ubiquitous in nature. It has been recovered in pure culture from certain of their patients on many different occasions. When the histological and hematological findings have been positive Bunting and Yates have never failed to get pure cultures, except where treatment has previously been instituted. This same diphtheroid organism has been isolated from patients representative of seven different disease pictures. From an etiological standpoint, then, the following diseases must be grouped together. The various pathological changes found here represent different stages of the same disease.

- | | |
|------------|--------------------------------|
| Group I. | Type Hodgkin's. |
| Group II. | Lymphoma—Large cell |
| Group III. | Lymphoma—Small cell |
| Group IV. | Banti's Disease |
| Group V. | Chronic Hypertrophic Arthritis |
| Group VI. | Elephantiasis |
| Group VII. | Mycosis Fungoides |

The toxin circulating in the tissues in Hodgkin's disease has a specific action on three types of cells: the lymphoblast, the endothelioid cell, and the fibroblast. The clinical course of this disease, which

shows alternating waves of aggression and regression, may be explained by assuming that the patient is never able to produce sufficient antibodies to overcome the infection.

In the past the patients have always been treated symptomatically. Yates now bases his treatment on an hypothesis which accords with the pathological and clinical aspects of the patients. The portal of entry is first excised. This, in the great majority of cases, is the tonsil. An attempt is then made to throw the balance of power on the side of resistance by excising as much of the diseased tissue as possible, thereby removing the greatest quantity of toxin in the shortest time. To prevent recurrences the wound is thoroughly bathed in iodine, and x-ray treatment is started within a few hours. Later immune serum is administered and proper hygienic measures are instituted. In the treatment the toxin must be neutralized. Unless this be done, whether the glands enlarge or not, the patient is doomed. (Lantern slides were shown to illustrate the cases.)

The presence or absence of perianadenitis is of great moment in gauging the therapeutic measures. Great perianadenitis points to an unfavorable stage. Excision, accordingly, is not carried out at such a time. To remove an individual gland in Hodgkin's disease for microscopic study should be censured as severely as a similar course in the presence of carcinoma.

Yates and Bunting regard only such patients as cured as have shown no recurrence within five years. In a series of ten cases under observation for from one to eight years: one died from the operation, three succumbed to the disease, four are living and well with excellent chances for cures, and two are absolutely cured—one after six and one after five years.

DISCUSSION.

DR. MALLORY: The diseases mentioned in the first three groups of Drs. Yates and Bunting should be regarded as different expressions of one process—the lymphoblastoma, Hodgkin's disease and the lymphomatous, then, are the clinical expressions of a new growth and are not infectious diseases. (Lantern slides were shown to illustrate the reaction of different tissues to the lymphoblastoma.)

DR. WRIGHT: A natural flora of organisms exists in the lymph nodes in smaller or larger numbers. It is conceivable that a tumor might arise from a pleomorphic organism in the nodes. There is still considerable skepticism regarding this, however, since nothing like Hodgkin's disease or lymphoma has been produced by inoculating animals.

DR. WOLBACH: The bacteriological work done by workers in general on Hodgkin's disease is very poor. The papers published on this disease give no satisfactory account of the characteristics of the organism supposed to be responsible for the pathological changes. It is absolutely essential that the properties of these microorganisms be adequately laid down. In view of the meagre bacteriological reports at present, and the wide distribution of the diphtheroids in the body, the speaker is skeptical regarding the organisms held responsible for Hodgkin's disease.

DR. GREENOUGH: The most important point from the clinical side is that the mortality from this disease under the usual conditions is close to 100%. Yet Dr. Yates points to a small proportion of his

cases which appear to have been definitely benefited by his measures.

DR. YATES: There is no known type of neoplasm which has constantly a temperature such as is seen in Hodgkin's disease. The tissues from some of Yates' and Bunting's experimental animals show a type of reaction which is very suggestive of the changes found in Hodgkin's disease. A perfectly characteristic blood picture appeared in the animals injected with this organism.

ERNEST GREY, M.D., *Secretary.*

Book Reviews.

The Medical Record Visiting List or Physicians' Diary for 1916. Newly Revised. New York: William Wood and Company. 1915.

The Physician's Visiting List for 1916. Philadelphia: P. Blakiston's Son and Company. 1915.

The Practitioner's Visiting List for 1916. Philadelphia and New York: Lea and Febiger. 1915.

The approach of a new year brings the annual editions of the standard visiting lists for physicians. These are as convenient as they are necessary, and the possession of one is essential to the practitioner who aims at efficiency and preparedness. Which one he shall select for his own use depends largely on his personal taste and habit, since all are suitable to the purpose for which they are designed.

The Etiology of Typhus Exanthematicus. By HARRY PLOTZ, PETER K. OLITSKY AND GEORGE BAEHR. 1915.

This monograph, reprinted from the *Journal of Infectious Diseases* of July, 1915, represents the original researches of the authors in the pathological laboratory of the Mount Sinai Hospital of New York, as a result of which they were enabled to determine the etiology of exanthematic typhus and to prepare an antitoxic and prophylactic serum therefor. In this important piece of investigation the bacteriological studies were made by Dr. Plotz and the serologic studies by Dr. Olitsky. The book is illustrated with a number of charts and tables and one full-page colored plate. It closes with a valuable alphabetic bibliography of 136 titles. The volume is of peculiar interest as presenting the primary record of a piece of medical research whose practical value received such prompt contemporary demonstration in the European War.

Guide to the Use of Tuberculin. By ARCHER W. R. COCHRANE AND CUTHBERT A. SPRAWSON. New York: William Wood and Company. 1915.

This book, as the title would indicate, is intended primarily for the general practitioner, and on this the reviewer would base his only criticism. In this country, at least, and doubtless to greater or less extent elsewhere, the general practitioner is in no position, either by training or experience, to undertake the use of tuberculin, particularly in cases of pulmonary tuberculosis, without danger of doing grave harm. The reviewer firmly believes that tuberculin and its administration in the vast majority of cases should be left to those who are trained in its use and who know not only its value, but its dangers and limitations. Aside from this the book is of value as presenting the subject of the therapeutic and diagnostic use of tuberculin in a short, yet clear, form. There are many illustrative charts, and numerous other diagrams and illustrations. Although it may be doubtful if many general practitioners will obtain much information from this source, for students, physicians in sanatoria and others interested in the subject of tuberculin the book will be helpful.

What to Eat and Why. By G. CARROLL SMITH, M.D., Boston. Second edition, thoroughly revised. Philadelphia and London: W. B. Saunders Company. 1915.

The first edition of this book was reviewed in the issue of the JOURNAL for Nov. 2, 1911 (Vol. clxv, p. 696). In this second edition the author has incorporated several accessory chapters, notably one upon exercise and one upon rheumatism. The sections dealing with affections of the stomach have been rewritten and much extended and other chapters have also been enlarged and brought to date. These additions increase the value of the work, which should be considerable to practitioners. The same comment made in our previous review may properly be repeated of this present new edition.

The Development of the Human Body. By J. PLAYFAIR McMURRICH, A.M.; Ph.D. LL.D. Professor of Anatomy in the University of Toronto. Fifth edition, revised and enlarged. Philadelphia: P. Blakiston's Son and Company. 1915.

The first edition of this convenient manual of human embryology was published in 1910. That the work should have reached this fifth edition within five years is evidence of the value which it has proved to possess for students and teachers. The increasing interest in embryology dur-

ing this period has led to a rapid advance in its knowledge and several of the chapters in this volume have accordingly been recast and their material expanded. At the close of each chapter is a useful bibliography of reference literature on the subject concerned. The book is admirably illustrated with 287 figures, several of which are printed in colors. In comparison with the larger and more elaborate scientific works on embryology, this volume affords a most practical and serviceable handbook of an abstruse subject.

Notes on Dental Metallurgy. By W. BRUCE HEPBURN, L.D.S., Glasgow. Second edition. New York: William Wood and Company. 1915.

This British manual of metallurgy for the use of dental students and practitioners was first published in 1910. It was intended as a practical guide in preparation for examination and for the manufacture of fillings in practice. Of particular importance are the chapters on the various alloys, solders and amalgams. This second edition aims to bring the subject matter to date, and in it the chapters on alloys and amalgams have been wholly rewritten, the latter by the author, the former by Dr. A. Campion, professor at the Royal Technical College in Glasgow. In this chapter have been added many useful alloys not included in the first edition. The appendix contains a number of useful tables. The work should recommend itself for its technical accuracy and clearness to students, teachers and practitioners.

The Book of the Fly. By G. HURLSTONE HARDY. New York: Rebman Company. 1915.

The discovery of the importance of the house fly as a host and disseminator of various infections led first to the publication of technical and scientific works on the fly, notably such as the volumes by Hewitt reviewed in the issues of the JOURNAL for June 10 (Vol. clxii, p. 867) and for July 8, 1915 (Vol. clxxiii, p. 57). With the diffusion of popular knowledge and interest upon this subject, there arose need for works of a simpler type. The author, in his sub-title, describes the present monograph as a "nature study of the house fly and its kin, the fly plague and the cure." In his preface Dr. Halford Ross comments on the importance of such a work to stimulate and guide intelligently the popular cooperation which is essential to the success of any efforts toward fly extermination. The text of the book is illustrated with a half-dozen figures, the appendix with seven full-page plates, illustrating the anatomy of the fly. The appendix also contains tabular classifications and descriptions of the various fly species and families. The book should be of value, not only to the laity, but to students, teachers and public health officials.

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DISTRICT MEDICAL SOCIETIES.

DURING the past few years a feeling which is not without good foundation has arisen in the minds of those interested in the broad problem of preventive medicine that, to a certain degree at least, the medical profession is lagging behind the general public in the interest which it takes and the knowledge which it shows of this most important phase of medicine. As a result of this feeling, last year the National Tuberculosis Association organized a plan whereby it was hoped that state medical societies, and through them the district medical societies throughout the country, would take the necessary steps to ensure at least one meeting a year of their annual programs devoted to the subject of tuberculosis and its prevention. Word to this effect, offering hearty co-operation and help in the way of material and lantern slides, was sent out by the National Association to the sec-

retaries of state and local societies. In Massachusetts, at least, there is every reason to believe that these notices received little or no attention.

In the annual program of what is presumably the largest, most powerful and influential district medical society in this state, for instance, for the past two years and for this ensuing year the subject of tuberculosis and its prevention has not been considered except by casual mention. A well known physician was heard to remark that if one wanted to clear the hall at any medical society meeting, one had only to mention the subject of tuberculosis.

While it is in no way claimed that tuberculosis and its prevention is the most important problem in medicine, it may be truly stated, however, that the tuberculosis problem, the cancer problem, and the venereal disease problem are the greatest questions yet unsolved which confront us today.

It would seem, therefore, that the suggestion sent out by the National Tuberculosis Association that one meeting a year of each district society be devoted to the consideration of this subject in its broadest possible aspects, is a most wise one. It would be of greater advantage if some definite arrangement could be made in this state whereby the chairmen and secretaries of local tuberculosis societies were asked to submit the program for their yearly meetings to some central committee and to arrange these programs so as to include one evening each year devoted to tuberculosis, cancer, venereal disease, and public health, respectively. The difficulties arising in regard to speakers, papers, material, lantern slides, etc., could easily be met by the various societies and other organizations interested in these subjects.

This is an excellent opportunity to coördinate and improve a somewhat chaotic condition of the yearly programs of the average district medical society in Massachusetts. It is to be hoped that the Massachusetts Medical Society will take some step as here suggested to bring this about.



MEDICAL MILITARY REORGANIZATION.

WHILE the subject of military preparedness is attracting national attention, the Southern Medical Association, at its recent meeting in Dallas, Texas, from November 8 to 11, took occasion especially to discuss the subject of medical mili-

tary reorganization, and the importance, in any scheme for enlarging the military provisions of this country, of providing adequately for the medical care of the increased number of troops. As a result of its discussion, the association adopted a series of resolutions, which are published in full in another column of this issue.

The attention of the District Medical Societies throughout the state is called to these resolutions. Fellows of the Society are urged to get into touch with their congressmen and to insist on the importance of incorporating in any bill for an increased army, provision for a sufficient number of trained medical men to care for the health of the soldiers both in time of peace and in war. The experiences of the Spanish War without a definite pre-arranged plan for the medical department of the army are still fresh in mind.

As a matter of fact the measure to be proposed in Congress this winter makes no attempt to provide for sufficient medical attendance in a crisis, or even in times of peace. No class of men is better qualified to determine the necessary number of medical officers than the physicians of the country as represented in the American Medical Association and such more local organizations as the Southern Medical Association. In the present era of preventive medicine, when thorough knowledge of the etiology of disease and of precise methods of caring for the sick and wounded make possible the prevention of epidemics such as used formerly to devastate armies in the field, it is imperative that the health of any army, whether in peace or in war, should be entrusted to especially trained men. Failure to make such provision is only to invite catastrophe and is sure to result in the occurrence of avoidable diseases and in the suffering and loss of wounded from lack of proper treatment. Ultimately, it is the state, as well as the individual, which suffers from the needless sacrifice of human lives through negligence.

As a part of national military preparedness, for peace and for or against war, it is therefore essential that suitable provision for the army and navy medical corps should form an integral part of any legislative program that may be advanced. Congress has already convened and will act shortly. Whatever is to be done in the way of influencing its opinion and action must be done promptly. It is the duty of individual

physicians and of medical organizations throughout the country to urge upon their representatives, individually and collectively, the cardinal importance of the medical aspect of military reorganization.

A NEW DEPARTMENT.

SINCE the reorganization of the *JOURNAL* at the beginning of the current year, it has been its intention to present more intimately to its readers, material proceeding from the hospitals and laboratories, affiliated with medical education in the community which it represents. To a considerable extent this has been already possible, and it is expected that it will become possible to a steadily increasing extent hereafter.

On another page of the present issue of the *JOURNAL* is presented for the first time a new department, established in furtherance of this representative design, under the heading of Harvard Medical School. This department will contain reports of societies meeting at the school or its allied hospitals, accounts of work of special interest that may be in progress at any of these institutions, preliminary reports of laboratory or clinical research, and other briefer items of particular interest pertaining to medical education.

In the present issue there appears in this new department the first systematic report of one of the medical meetings at the Peter Bent Brigham Hospital. These meetings are held nearly every week, and it is expected that their proceedings will be regularly chronicled by the secretary. The other item appearing in the new department this week is a summary of one of the Friday afternoon exercises held at the school for the fourth-year class. This series of exercises, which is an innovation this year in the medical curriculum, aims to review for the benefit of the graduating class important topics selected from the entire field of medicine. It is believed that these exercises, conducted by experts, lead to the production of material which will be of value, not only to students, but especially to practitioners of medicine. It is the purpose of the *JOURNAL*, therefore, to present weekly reports of these exercises prepared under the authority and supervision of the instructor responsible for the exercise in each case.

The JOURNAL calls the attention of its readers to this new department with the hope that it may prove of interest and value to them, not only as friends of medical education, but as practitioners in the larger clinical fields.

MASSACHUSETTS MEDICAL BENEVOLENT SOCIETY.

THE recent annual meeting of the Massachusetts Medical Benevolent Society should recall to the profession the quiet but constant beneficence of this peculiarly characteristic medical charity. For many years the society has annually devoted its entire income to the charitable relief of unfortunate physicians, their widows or children, whom circumstances have made dependent upon the pecuniary aid of others. During the year ended in October, 1915, twenty-three beneficiaries were in this manner saved from acute destitution. Many other deserving cases needed assistance which, for lack of more funds, the society could not give.

It has always been a characteristic point of honor in our profession, as in no other, that its members and their families should freely receive professional service in sickness. It should be felt as equally an honorable duty among physicians to see to it that none of their professional brethren suffer, in old age or adversity, from destitution or physical hardship.

The hardships of war fall with peculiar severity upon our professional colleagues and their families in Europe; but at the same time it should not be forgotten to make provision for the inevitable hardships of misfortune in our own professional community. Every physician to whom the opportunity offers, should feel it a privilege, as well as a pleasure, to assist the Massachusetts Medical Benevolent Society in its work of charity and relief.

A STUDY IN HOSPITAL EFFICIENCY.

DR. E. A. CODMAN has recently issued a report of his work on hospital organization as regards the end-result system. This system, as it was presented before the Clinical Congress of Surgeons of North America at its meeting in Novem-

ber, 1913, is set forth in the Report of the Committee on Standardization of Hospitals. Dr. Codman states the object of his report to be two-fold. "In the first place (Part I) to continue the illustration of the use of the end-result system given in the first report; and in the second place (Part II), to show the reasons for believing that the great factor militating against the adoption of the end-result system in our large hospitals is the failure of the trustees to realize the financial value of hospital positions to those holding them." Part I contains reports of 270 cases recorded in the manner approved by Dr. Codman and in accordance with the system he advocates. Part II is a study in hospital efficiency, based on the financial report of a private hospital. It expounds the theory that "a hospital appointment is a big asset to the doctor and especially to the surgeon," in return for which he demonstrates his usefulness to the institution and requires it for the benefit which he derives from it by means of the end-result system. In short, Dr. Codman states clearly and logically and by the use of figures that the results to be gained by such a system are: (1) private institutions guaranteeing good results and subject to litigation if they do not get good results; (2) charitable institutions, in which the patients are true experimental material, but guaranteed the best treatment by the end-result system, which makes it for the interest of each surgeon (selected because of his fitness) to get better results than did those before him.

MEDICAL NOTES.

THE WEEK'S DEATH RATE IN NEW YORK.—According to Dr. William H. Guilfoy, Registrar of the Department of Health, the past week has been one of the healthiest in the history of New York City, especially so far as the prevalence of infectious diseases is concerned, as shown in the number of deaths reported from these causes. There was one death reported from scarlet fever, three from measles and eighteen from diphtheria and croup in the entire city, these figures being much lower than at any previous corresponding week of which we have records. The number of deaths reported from broncho-pneumonia, which is a disease chiefly of childhood, was sixty-seven, as compared with ninety-four during the corresponding week of 1914. The adult population was correspondingly healthy; in other words, at all the age groupings of the population there was a decline in the number of

deaths compared with the corresponding week of 1914. There were two causes of mortality that showed an increase, and those were organic heart disease and pulmonary tuberculosis.

The number of deaths reported in the entire city during the week was 1318, with a death rate of 11.84 per one thousand of the population, as against 1389 deaths and a rate of 12.98 during the corresponding week in 1914, a decrease in the absolute number of deaths of 71 and a decrease in the rate of 1.14. The death rate for the first forty-eight weeks of 1915 was 13.54 per one thousand of the population, as against a rate of 13.71 for the corresponding period in 1914, a decrease of .17 of a point.

TUBERCULOSIS WEEK, DECEMBER 6 TO DECEMBER 12.—The week of December 6 to 12 has been designated as National Tuberculosis Week. During this time, an effort will be made to revive interest in tuberculosis as still the greatest public health problem. This year special emphasis will be laid on the importance of regular medical examinations. Wednesday, December 8, has been designated "Medical Examination Day," and hundreds of thousands of circulars are being distributed to the people of New York City, urging them to consult their family physician, to submit to a thorough physical examination at his hands, and carefully to follow the advice he gives.

The New York Health Department has secured the coöperation of the Tuberculosis Committee of the Charity Organization Society and the Tuberculosis Committee of the Brooklyn Bureau of Charities, and through these agencies is distributing a large number of health leaflets through the churches and the labor unions of this city. The services of the field force of the Metropolitan Life Insurance Company and the Prudential Life Insurance Company have also been placed at the disposal of the Department for the distribution of these leaflets.

The physicians of every city can render invaluable aid to the cause of public health by advocating regular medical examinations to their patients and by carrying out the examinations with care and thoroughness.

REDUCTION IN THE COST OF PRODUCING RADIUM.—It has been announced that the Secretary of the Interior, through the Bureau of Mines and Dr. Howard A. Kelly of Baltimore, has succeeded in reducing the cost of the production of radium. The cost of radium at the Denver Experiment Station, including the first experimental work, was \$37,000 a gram of radium metal. The market price of radium for the last two or three years has been \$120,000 to \$160,000 a gram.

"The Bureau of Mines produced this radium in coöperation with what is known as the National Radium Institute, which was organized for the purpose of studying the curative properties of radium and not for private gain. These

investigations from the first have been under the direction of Dr. C. L. Parsons, of the Bureau of Mines, the funds being furnished under coöperative agreement between the National Radium Institute and the Bureau of Mines by Dr. Howard A. Kelly, of Baltimore, and Dr. James Douglas, of New York. Up to the present time, five grams of radium have been extracted from the carnotite ores, and about half of it has been delivered in finished form to the Kelly Sanatorium, in Baltimore, and to the Memorial Hospital, in New York."

AFFILIATION OF MEDICAL SCHOOLS.—It is announced that on November 15, final plans were arranged for a union between the Medicco-Chirurgical College of Philadelphia and the Medical School of the University of Pennsylvania. It is expected that this affiliation may also be joined by the Polyclinic Hospital of Philadelphia, which maintains a graduate medical course for physicians.

MANUFACTURE OF DE-ALCOHOLIZED WINE.—In the issue of the JOURNAL for August 19, we commented editorially on the possible use of de-alcoholized beverages as a preventive of inebriety. In a recent issue of the *Scientific American* is quoted from *L'Italia Agricola* a description of the manufacture of such de-alcoholized wine as a new feature in the Italian wine industry. The product contains all the components of wine including the ethers, aldehydes and tannic acid to which the taste is due. In Italy the process of this manufacture is by fractional distillation under relatively low pressure whereby the alcohol alone is removed.

FIRST CRUISE OF THE ANDROSCOGGIN.—The United States Coast Guard Cutter *Androscoggin*, which has again been assigned this season for hospital duty off the fishing banks, returned to Boston on November 24, from her first cruise off the Nova Scotia coast, during which relief was given to the crews of several fishing vessels.

EXHIBIT ON HISTORY OF SURGERY.—In connection with the Congress of Clinical Surgeons, meeting in Washington, November 26-27, an interesting exhibit of books and pictures, illustrating the history of surgery, has been prepared by Dr. Arnold C. Klebs, at the invitation of Colonel C. C. McCulloch, Librarian of the Surgeon-General's Office, and may now be seen in the Library Hall of the Army Medical Museum. Dr. Klebs is at present unofficially attached to the Surgeon-General's Library in an advisory capacity.

FOOT AND MOUTH DISEASE.—Report from Washington states that by a federal order issued on November 27, the quarantine against foot and mouth disease was completely raised in Massachusetts and New Jersey and modified in a number of counties in Illinois.

PREVALENCE OF MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX, AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for November 19, 1915, states that during the week ended October 30, there were 23 deaths from cerebrospinal meningitis in Sacramento, Calif.; 31 cases of pellagra in Nashville, Tenn.; 4 of poliomyelitis in Cleveland, Ohio, and in New York City; 9 of smallpox in New Orleans, La.; and 81 cases and 8 deaths of typhoid fever in New York City.

EUROPEAN WAR NOTES.

CHOLERA IN AUSTRIA-HUNGARY AND GERMANY.—During the week ended August 22, 287 cases and 166 deaths of Asiatic cholera were reported in Hungary, and during the week ended August 29, 212 cases and 124 deaths. During the week ended September 18, there were six cases and one death of cholera in Germany. Nearly all the cases were among civilians. During the same period the disease was prevalent among prisoners of war in detention camps at Erfurt, Magdeburg, Marienwerder, Oppeln, Posen and Stettin.

In Galicia from December 27, 1914, to September 18, 1915, the official statistics in the monthly *Bulletin* of the International Office show 27,591 cases of cholera and 15,270 deaths. Of these, 699 cases with 180 deaths occurred among prisoners of war, and only 172 cases with 34 deaths among soldiers. Judging from the statistics for Austria for the period from August 15 to September 18, it would appear that the epidemic has been more severe among the civil population, as there were no fewer than 15,175 reported cases and 9,113 deaths, of which only 327 cases with 32 deaths occurred among the troops, and 39 cases with 12 deaths among prisoners of war.

WINNER OF A NOBEL PRIZE.—In a recent issue of the JOURNAL we noted the award of the Nobel Prize in medicine to Dr. Robert Bárány of Vienna. Dr. Bárány is a Hungarian born in 1876 and has devoted his life chiefly to work upon the ear. At the outbreak of the European War, being then a lecturer at the University of Vienna, Dr. Bárány volunteered in the medical service and was assigned to have charge of a military hospital of 250 beds at Przemysl. Upon the capture of this city by the Russians he was made prisoner and transported to a camp at Irkutsk in Siberia. Here he fell ill with malaria and was later transported to Nerw. Dr. Bárány's work has been chiefly in the diagnosis and treatment of diseases of the internal ear, especially with regard to the interpretation of aural vertigo. Garrison, in his history of medicine for 1914, says:

"Labyrinthine vertigo or vestibular nystagmus, is interpreted by Bárány as a disturbance of function of the vestibular nerve, or the organs to which it is distributed, and he has traced its origin to a large number of different causes with which it might be confused. He has intro-

duced a number of ingenious differential tests, such as production of nystagmus by irrigation of the external meatus with cold or warm water, or by having a patient try to point at an object with his eyes shut after having previously touched it, and he has been able to prove his case by successful operations on the cerebellum, or the internal ear. He has also devised a "noise" machine for testing paracusis Willisii, and other diagnostic novelties."

WAR RELIEF FUNDS.—On Dec. 4 the totals of the principal New England relief funds for the European War reached the following amounts:

Red Cross Fund	\$142,764.01
American Ambulance	70,799.58
Serbian Fund	54,018.76
Allied Fund	42,680.30
French Fund	26,824.01
Armenian Fund	22,488.53
Surgical Dressings Fund	13,097.50
LaFayette Fund	12,833.99
Italian Fund	12,311.69

BOSTON AND NEW ENGLAND.

THE WEEK'S DEATH RATE IN BOSTON.—During the week ending December 4 there were 243 deaths reported, with a rate of 17.41 per 1000 population, as compared with 219 and a rate of 15.86 for the corresponding week of last year.

There were 31 deaths under 1 year, as compared with 33 last year, and 90 deaths over 60 years of age, against 64 last year.

Total deaths reported in 48 weeks from Jan. 2 to Dec. 4 were 10,864, against 10,864 for the corresponding period in 1914.

Deaths under 1 year reported in the same period were 1843 against 1837 for the corresponding period in 1914.

During the week the number of cases of principal reportable diseases were: Diphtheria, 54; scarlet fever, 41; typhoid fever, 2; measles, 43; whooping cough, 61; and pulmonary tuberculosis, 52.

Included in the above were the following cases of non-residents: Diphtheria, 7; scarlet fever, 3; measles, 1; and tuberculosis, 4.

Total deaths from these diseases were: Diphtheria, 4; typhoid fever, 2; measles, 1; whooping cough, 1; and tuberculosis, 24, in which are included the following deaths of non-residents: Diphtheria, 1; measles, 1; and tuberculosis, 2.

ALUMNI OF THE UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE.—The regular winter meeting of the New England Alumni of the University of Maryland School of Medicine was held at the Quincy House, Boston, Wednesday evening, December 8, 1915. The following papers were read: "The Duty of the General Practitioner to the Hospital, and the Duty of the Hospital to the General Practitioner," by Dr. Louis A. Russlow, Randolph, Vermont; and "Thyroids in General Medicine," by Dr. Frank Matulaitais, Boston, Mass.

INSANE AND FEEBLE-MINDED IN MASSACHUSETTS.—It has been computed that the number of feeble-minded in the State of Massachusetts is increasing at the rate of 139 persons per year. The average annual increase of the insane during the last twenty-five years has been 378. The insane, feeble-minded, epileptics, voluntary patients in insane hospitals, inebriates and those requiring temporary care amount to 17,204, or one for every 208 of the population.

So far as the birthplaces of the insane can be determined, 54% were born in the United States and 45% in foreign countries. But of the parents of the insane, 31.72% of the mothers were born in this country, and 68% abroad. Of the fathers, 30% were born in this country and 69% in another country.

As regards sex, the female insane outnumber the male—7263 to 6859. In the case of the feeble-minded the situation is reversed, the males numbering 1363 and the females 1068.

PAYING WARD AT THE MASSACHUSETTS GENERAL HOSPITAL.—Final arrangements have been completed for the erection of the new paying ward at the Massachusetts General Hospital. The addition will be eight stories high, built of limestone and brick, and will be one hundred and fifty feet long and fifty feet wide. The first floor will be devoted to administrative purposes. The operating room and etherizing room will be on the top floor. The remaining six floors will provide accommodation for about one hundred patients. The rooms are large and sunny, and will be made as homelike as possible. Those on the front of the building will have fireplaces. That this new ward will fill a long-felt want both on the part of physician and of patient by providing facilities for expensive medical care to those of moderate means and by affording members of the staff convenient means to care properly for such patients, there can be no doubt.

RADIUM TREATMENT AT CARNEY HOSPITAL.—It is announced that a gift of 25 milligrams of radium has been made to the Carney Hospital by M. Douglas Flattery, a Boston attorney, for the purpose of establishing a clinic for the treatment of malignant diseases. Mr. Flattery's gift to the Harvard Medical School for the establishment of a fellowship for the study of cancerous and allied growths was recently noted in the JOURNAL.

SIAS LABORATORY AND BROOKS HOSPITAL.—The Sias Laboratory and the Brooks Hospital, institutions erected by Mrs. Charles D. Sias in memory of her husband, are completed and were opened in Boston Nov. 18. The laboratory is intended to be used for original research, and its use, without charge, to any medical graduate who wishes opportunity to do such work. The superintendent of the hospital is Miss Elizabeth Peden, a graduate of the Massachusetts General Hospital.

Massachusetts Medical Society.

COPY OF RESOLUTIONS PASSED BY
THE SOUTHERN MEDICAL ASSOCIATION, AT
DALLAS, TEX., NOV. 8-11, 1915.

THE attention of the District Medical Societies is called to the following resolutions which have been transmitted to the President of the Massachusetts Medical Society by the President of the American Medical Association:

Whereas, The President and the Honorable Secretary of War have announced in the public press that a scheme for the reorganization of the Army will be presented to Congress at its coming session, which will materially increase the military establishment, and

Whereas, We recall the indignant protests and criticisms of the Nation at the failure to provide adequately for the sick and wounded at the beginning of the Civil War and the Spanish-American War, and

Whereas, It is known that this failure was due to the lack of a sufficient number of medical officers in the regular army and a means for increasing the medical establishment at the outbreak of war, and

Whereas, In spite of the lessons of the Spanish-American War, which were fresh in mind in the reorganization of the Army in 1901, the Medical Department was not properly increased, and no provision was made for its expansion in time of emergency, and

Whereas, to correct the defects in the 1901 legislation, subsequent legislation was necessary in which the medical profession of the United States was called on to assist;

Therefore, Be it resolved by the Southern Medical Association, in session at Dallas, Texas, that the Secretary of War be petitioned to make adequate provision in the reorganization of the Army about to be presented to Congress for a sufficient number of medical officers for the regular establishment, which provision should aggregate a proportion of medical officers of, at least, seventy-five hundredths of one per cent. of the enlisted strength of the Army, or such numbers as the Surgeon-General of the Army may deem necessary, and,

Be it further resolved that the Secretary be petitioned to make provision in this reorganization for the expansion of the Medical Department at the beginning of war, by calling into service in the Medical Reserve Corps physicians from civil life who have been instructed in their special duties as medical officers in our summer camps, and otherwise as the War Department may see fit.

Obituary.

FREDERICK WILLIAM RUSSELL, M.D.

DR. FREDERICK WILLIAM RUSSELL, for many years a practitioner in the town of Winchendon, Mass., died at the residence of his son-in-law, Dr. Frank J. Hall, 4119 Cedar Springs Avenue, Dallas, Texas, November 20, aged 71.

He graduated from Harvard College in the class of 1869, and from the Medical Department of New York University in the class of 1871. He was a hospital steward during the Civil War, and served in that capacity under his father, Dr. Ira Russell, who was commissioned by Abraham Lincoln to organize the hospital service in Tennessee, Missouri, and Arkansas, both father and son being in service at the close of the war at Prairie Grove, Ark.

After his graduation in medicine he associated himself in practice with his father in Winchendon, where father and son together conducted "The Highlands," a private institution for the treatment of mental and nervous invalids, an institution established many years ago by Dr. Ira Russell, and one of the first of its kind at that time.

After the death of his father, in 1888, Dr. F. W. Russell continued "The Highlands" up to three years ago, when from ill health, he gave up active work to make his home (together with his wife, Mrs. Caroline Marvin Russell, who survives him), with his daughter, Mrs. Frank J. Hall, in Dallas. During his brief residence in Dallas, because of his genial nature and interest in all social and scientific bodies, he made many friends.

Having been for many years a member of the Worcester County (Mass.) and various other medical societies of New England, he was elected honorary member of the Dallas Medical and Surgical Association, and was elected President of the Texas Harvard Club, which honor he declined, but was elected and re-elected honorary president of this organization.

In connection with his medical studies, Dr. Russell made a lifetime study of entomology, and became an entomologist of note. He was a member of the American Entomological Society, and during his life, made a rare collection of moths, and wrote some valuable manuscripts and classified and made valuable plates of various specimens of moths of his collection.

His remains were taken by his son, Walter M. Russell, of Emporia, Kansas, to Winchendon, Mass., where they were laid to rest in the family lot.

BENJAMIN JOY JEFFRIES, M.D.

DR. BENJAMIN JOY JEFFRIES was born in Boston, March 26, 1833. He died November 21, 1915, in his 83rd year. He descended from a long line of distinguished ancestry, in whom he took great pride, the first of whom to come to this country from England was David (1658—1742), who graduated at Harvard in 1708. His father and grandfather were physicians of Boston. It was his grandfather, John, Surgeon-General of the British forces in America, who crossed the English Channel in a balloon from England to France in 1785.

Dr. Benjamin Joy Jeffries graduated from the Boston Latin School, and received his degree of A.B. in 1854, and three years later, that of M.D., from Harvard, after which he continued his medical studies in Vienna, principally under Prof. Arldt and Prof. Hebra, for it was his intention on returning to Boston to practise in the two specialties, dermatology and ophthalmology, and for two years he gave especial attention to these two classes of affections. In connection with Dr. Francis P. Sprague and the writer, he opened a free dispensary for their treatment in Eliot street. He also began with his colleague the translation of Hebra's great treatise on dermatology. He also gave a course of lectures on this subject to the medical class and wrote a small work on "Diseases of the Skin." Gradually he gave up his dermatological practice and devoted himself exclusively to the study and treatment of diseases of the eye.

He held the post of ophthalmic surgeon to the Massachusetts Charitable Eye and Ear Infirmary from 1866 to 1902, a devoted servitee. He was a member of many local, national and international ophthalmological societies and congresses. He was especially interested in the subject of color blindness, and his treatise, "Color Blindness, its Dangers and Detection," published in 1879, was long the standard authority on the subject and led to important public measures for the safety of railroad transportation and travel on the sea. He published also a book entitled "The Eye in Health and Disease." He was particularly interested in the question of the proper administration of ether in ophthalmic surgery and made a special trip to England to demonstrate the better methods in use in America to his foreign colleagues.

Dr. Jeffries was very fond of the ocean and yachting, and spent many summers at Swampscott and on the shores of Hingham Harbor, and latterly, at Marblehead.

He was greatly endeared to many of the surviving members of the profession and to his classmates, now reduced to seven in number. In the last few years he had undertaken the duties of class secretary.

He wrote many papers read at medical so-

cieties, the principal titles of which are given in the appended footnote.*

He was a member of many medical and scientific societies and a constant attendant at their meetings. He was long an officer of the Boston Society of Natural History. He was surgeon of the Boston Independent Corps of Cadets, and took a strong interest in military matters. He belonged to several social clubs; the Porcellian and Hasty Pudding while in college; the Thursday Evening and Somerset later in life. He was much interested in local colonial history in which his ancestry for several generations had played a conspicuous part.

He married in 1872 Marian, daughter of Charles Shimmin. There were two children from this union, Charles who died during his freshman year in college, and a daughter, Marian, recently married to Dr. James Howard Means, Harvard, 1907. Dr. Jeffries' wife died in 1888, since when he had lived in the old family mansion, 15 Chestnut street, with his daughter who has taken the most devoted care of him in his declining years. Dr. Jeffries remained in fairly good health and continued to practice his profession until the last three or four years. His strength and functions have slowly failed, and he died of quick pneumonia on November 21, an honorable, genial man.

- * 1868 I. Enucleation of the Eyeball.
II. Section of Oiliary Nerves and Optic Nerve.
III. Some Unnecessary Causes of Impaired Vision, 17 pp.
8 mo. Boston. D. Clapp & Son.
- 1871 Diseases of the Skin: Recent Advances in Their Pathology and Treatment. Boylston Prize Essay, 79 pp., 8 mo. Boston. A. Moore.
- 1871 Report on Progress of Ophthalmology, 69 pp., 8 mo. New York, 1871.
- 1871 The Eye in Health and Disease: Being a series of articles on the anatomy and physiology of the human eye, and its surgical and medical treatment. 119 pp., 8 mo. Boston. A. Moore.
- 1872 Animal and Vegetable Parasites of the Human Skin and Hair. 102 pp., 8mo. Boston. A. Moore.
- 1872 Reintroduction of Ether into England, BOSTON MEDICAL AND SURGICAL JOURNAL, 1872, lxxvii.
- 1872 On Operations for Breaking up Attachments of the Iris to the Crystalline Lens, or Posterior Synechiae. Rept. Mass. Char. Eye and Ear Inf., 1872, xvi.
- 1873 Miscellaneous Papers. Tr. Am. Ophth. Soc., 1873.
White Sarcomatous Intra-ocular Tumor.
Utra-ocular Tumor: White Fusiformed-cell: Enucleation.
Sarcoma: Enucleation.
Two Cases of Herpes Zoster Ophthalmicus, Destroying the Eye.
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1882 Color-Names, Color-Blindness, and the Education of the Color-Sense in our Schools. Education, March, 1882.

1883 Our Eyes and Our Industries. Rept. Board of Health of Mass., 1882.

1886 Physical Examination of Candidates for the United States Naval and Military Academies. BOSTON MEDICAL AND SURGICAL JOURNAL, 1886, cxiv.

1886 Some Medico-Legal Cases Under State and National Laws Tr. Am. Ophth. Soc., 1886-7, i.

1886 Re-establishment of the Medical Profession. Med. Commission, Mass. Med. Soc., Boston, 1887-9, xiv.

1889 Report of the Examination of 27,927 School Children for Color-Blindness. School Document No. 13. 9 pp., 8mo. Boston. Rockwell & Churchill.

1895 Report on Worsted for Holmgren's Test. Tr. Am. Ophth. Soc., 1895.

Miscellany.

STEREOPTICON LOAN LIBRARY.

THE United States Public Health Service has recently issued the following information regarding the stereopticon loan library which it maintains in Washington:

"The stereopticon loan library established by the United States Public Health Service, consists of over 2000 views, the majority of which are original, dealing with the aspects of various public health problems. Additions are constantly being made to the collection. The slides are classified by diseases or subjects, the following being the respective divisions of the library:

Alaska. Eighty-three views depicting living conditions in the territory of Alaska, the type of villages, and the diseases from which the natives suffer.

Children and Children's Diseases. The various eruptive diseases of children are shown in 50 views. Chiefly of interest to physicians.

Health Exhibits. Over 90 photographic slides of the exhibit of the U. S. Public Health Service at the Panama-Pacific International Exposition. Many of these views explain the means of dissemination of different diseases, the mortality therefrom and the value of preventive measures. All are original.

Hookworm. The geographic distribution of the disease, its economic importance, the life history of the parasite, its invasion of human tissue and the resulting effects, are demonstrated in a series of over 90 slides.

Indians. Housing and living conditions among American Indians. Shown in 50 views.

Leprosy. Forty-five slides depicting the disease. Principally of service to physicians.

Living Conditions. Contains a relatively small number of slides. See other subjects.

Malaria. Prevalence of the disease, the malarial parasites, larval, pupal and adult developmental stages of mosquitoes, breeding places, methods of extermination, including oiling, drainage and the types of fish destructive to larvae. Prevention of the disease by screening and the use of quinine. 275 views.

Milk. Eighty views showing tuberculous cows, proper and improper stabling, care and treatment of dairy herds, methods of obtaining

pure milk, spread of milk-borne epidemics, and the value of sanitary measures.

Miscellaneous Subjects. Sewage disposal, fumigation and cleaning of railway cars, and views relating to Rocky Mountain Spotted Fever.

Mouth Hygiene. Twelve slides showing the development of the teeth.

Parasites and Organisms. Over 200 views of the common organisms causing the diseases of man, including different types of water organisms. Also the developmental stages of fleas, lice, flies, and disease-bearing vermin.

Pellagra. Statistical data, geographical distribution and the lesions of the disease presented by 60 photographic slides.

Plague. Perhaps the most complete collection of original plague slides extant. Practically every aspect of plague prevention is demonstrated, including the eradication of rodents and squirrels, methods of rat-proofing, ship fumigation, the examination and classification of rats, the plague organism, and the relation of fleas to the spread of the disease. Over 500 views.

Rural Schools. Not yet complete. Ten slides.

Service General. The activities of the U. S. Public Health Service, depicted in 320 views. Quarantine vessels and stations, methods of fumigation, the examination of passengers, detention barracks and quarantine procedure. The mental and physical examination of immigrants, types of immigrants, and immigration stations. Marine Hospitals, including the tuberculosis sanatorium at Fort Stanton, New Mexico.

Smallpox. Ninety slides illustrating the eruptive stages of the disease, the protection afforded by vaccination and the lesions thereof.

Trachoma. The disease in its acute and chronic stages, and such effects as pannus, entropion and blindness. Trachoma among the American Indians and the relief work of the Public Health Service in the mountains of Kentucky are also shown. One hundred and twenty slides, many of which are colored.

Tropical Diseases. Incomplete. Filariae, trypanosomes, and intestinal parasites illustrated, together with the common infections of the tropics. Forty views.

Tuberculosis. One hundred slides showing the economic loss from tuberculosis, susceptible races, the tubercle bacillus, pathological conditions in the lungs, the relation of the disease to improper housing and the causes predisposing to infection. Also the methods of care, precautions to be exercised and the benefits of sanatorium treatment.

Typhoid Fever. Of great public health interest. The rôle of uncleanliness, infected milk, polluted water, improper sewage disposal, and dies, in the dissemination of the infection. Methods of prevention, including proper care of milk supplies, avoidance of water pollution, and the prevention of fly breeding; 350 views.

Yellow Fever. Mosquitoes in different stages of development, preventive measures, including

detention camps. The discoverers of the means of transmission of the disease.

HOW TO USE THE STEREOPTICON LOAN LIBRARY.

The slides are loaned to physicians, health organizations, educators, welfare workers, and others, without cost. Persons desiring slides should advise the Bureau as to what subjects they are interested in, so that the proper catalogues may be forwarded. The slides should be selected by number, and the request made upon the application blank. If desired, the Public Health Service will undertake to make the selection, provided the applicant will state what he wishes to illustrate. There is no arbitrary limit within which the slides are to be returned, but as the demand far exceeds the supply, it is expected that they will be returned at the earliest possible moment. Stereopticon lanterns are not loaned, but as the slides are of standard size, 3 1/4 by 4 inches, any lantern may be used. It is expected that slides broken by careless handling or packing will be replaced; these to be ordered from the Government contractor by the U. S. Public Health Service, and the bill therefor to be paid by the borrower.

It is requested that in returning the slides, a letter of transmittal be forwarded, stating the approximate number of persons to whom the views have been shown. The container should be labelled with the name and address of the sender, and returned by express prepaid or by mail. Photographs, from which it is possible to obtain slides of public health interest, will be gladly received and promptly returned."

RABIES AND DOG MUZZLING IN NEW YORK.

In the weekly bulletin of the New York Department of Health for November 20, appears in part the following statement about rabies and the muzzling of dogs in that State.

"The presence of rabies in New York City either in men or animals is a reflection on the work of the Department of Health, but it is a more severe reflection on the loyalty and cooperation of the citizens of the city as indicated by an opposition to a most necessary and justifiable ordinance, viz: the muzzling of dogs when at large.

Rabies has existed both in men and animals for a long period of years, but of late has been assuming proportions likely to occasion well grounded alarm in the minds of all who appreciate what this means. Previous to 1904, rabies was rarely present in this city, only an occasional case being encountered. One case was found in 1904, none in 1905 and only three in 1906. Since 1906, cases have been encountered each year, lately in somewhat increasing numbers. The disease has not been confined to dogs and other animals, but has taken toll in human life as well.

In both human beings and animals, rabies is almost invariably fatal. In a large percentage of cases of human beings bitten by rabid animals, prompt use of the anti-rabic treatment has been most effectual in preventing the development of rabies. This treatment is administered free of charge at the Pasteur clinics of the Department of Health, or the material will be furnished to private physicians for administration.

Although most willing to furnish treatment for rabies, the Department of Health cannot overlook the fact that this disease is entirely preventable. With proper appreciation of the significance of this truth and cheerful coöperation on the part of persons owning dogs, rabies could be speedily and effectively controlled and in time be prevented.

In England, rabies was very prevalent until effectual muzzling of dogs and a strict dog quarantine demonstrated that the disease could be controlled. Since 1902, there has been no rabies in all England. The chart of Frothingham clearly demonstrates the effectiveness of this measure; when it was loosely enforced, rabies increased; but when rigidly enforced, the disease soon diminished and then disappeared.

The Board of Health of the City of New York has declared* that dogs, unmuzzled and at large, are a nuisance, dangerous to life and detrimental to health. This declaration was broad and comprehensive and forbade owners and others to allow dogs at large. For a time, the regulation was rigidly enforced and had a marked effect upon the situation, as can be seen by the experience in the Borough of Richmond. After two years of active work, rabies in this borough was controlled. Subsequently, owing to the influence of agencies hostile to work of this character, this activity was discontinued and rabies soon reappeared.

The dog muzzling law now in force in the city of New York is contained in Section 17 of the Sanitary Code. This reads, as follows:

'No unmuzzled dog shall be permitted, at any time, to be on any public highway or in any public park or place in the city of New York.'

A dog, properly muzzled, is not a menace to the community. For this reason, therefore, and in justice to all other dogs, no dog should be permitted to go at large at any time without an efficient muzzle. According to Webster, muzzling is defined, as follows: To bind the muzzle of, to fasten the mouth of, *so as to prevent biting or eating.*

Some owners claim that certain dogs cannot be efficiently muzzled. This is absolutely not true. Other owners say that a muzzle makes their dogs irritable and surly. Horse owners know that a bridle will do the same to a colt until it is trained. New false teeth do not usually fit comfortably until time and nature soon have made the necessary adjustment, yet

after a time, they are worn without the least discomfort.

So far as dog-bites and rabies are concerned, the ordinary work of the Department of Health is limited to the investigation of reported attacks, the destruction of the biting dog if vicious, and the administration of Pasteur anti-rabic treatment to those bitten by a rabid or suspected rabid animal."

STERILIZATION OF DENTAL INSTRUMENTS.

THE possibility of the transmission of disease through the medium of dental instruments has probably been considered by every occupant of the dentist's chair. It constitutes one of the fears with which a patient is possessed the moment he adjusts himself for his period of treatment. Authoritative instances of the conveyance of contagion in this manner are extremely rare, its frequency not being determinable, although few will deny the possibilities of occurrences of this character.

The list of organisms which may contaminate dental instruments is formidable, but this does not mean that the diseases of which they are the causative factors necessarily ensue if they are accidentally carried into the mouth. Their presence upon dental instruments is, however, an indication of what the surgeons call poor technic. In surgery, poor technic is usually attended with disastrous results, but in dentistry errors of this character may produce no ill effects. In spite of this relative freedom from danger, dentists are determined that their methods shall equal the highest standards.

Cleanliness should be the primary consideration in all dental operations. The white coat of the operator represents more than comfort; it is the symbol of neatness. The dentist who works with unclean instruments, who provides soiled linen, or who places a common drinking glass before his patient, should be judged accordingly. Fortunately the members of the profession who do these things are criticized and suffer from loss of patronage, so that there is a strong tendency on the part of dentists to maintain their surroundings above reproach. With the sterilization of instruments some carelessness may manifest itself, partly owing to the fact that many instruments are injured by such processes, are too complicated to be treated in this manner, or that the public is not competent to detect errors of technic. However, the public is rapidly learning the value of aseptic methods and the proper equipment is now found in nearly all dental offices.

Thorough studies of the sterilization process have recently been made for dentists by the United States Public Health Service, at the request of various dental associations throughout

* Resolution adopted June 17, 1908.

the country, and in a recent publication of that Service detailed information will be found as to the accepted methods for the sterilization of all dental instruments.

Correspondence.

A WOMAN QUACK OF OLDEEN TIMES.

BOSTON, MASS., Nov. 26, 1915.

Mr. Editor: Human credulity in high place is well shown in the account given by Bolton of the notorious Mrs. Joanna Stephens, a woman practitioner of medicine, who flourished exceedingly in London about 1735. Certainly from the accounts of the doings of this unscrupulous dame, Perkins of "Metallic Tractor" fame, was a feeble amateur. Proclaiming that she had discovered a remedy of wonderful value in a painful disease, she soon had a large and lucrative practice in the highest social circles in London.

After receiving many enormous fees, she proposed to make the formula of her wonderful medicine public property, for the sum of five thousand pounds. Her friends and enthusiastic patients started a subscription, to collect this amount, but it was not found possible to raise the required sum. Nothing daunted, the woman's friends petitioned Parliament, and the petition was granted. A certificate was signed, Bolton tells us, by twenty justices. The certificate bore evidence to the "Utility, Efficacy, and Dissolving Power of the Medicines."

Analysis of these wonderful medicines, three in number, "a powder, a decoction, and pills," showed that the powder was composed of calcined egg shells and snails, the decoction of a mixture of herbs, soap and honey, boiled in water. The pills were made of "calcined wild carrot, burdock seeds, ashen keys, hips and haws, all burned to blackness, soap and honey."

A comparison of the sums spent by the public at the present day for nostrums equally as valueless as the above, is not exactly a compliment to these supposedly enlightened times.

Very truly yours,

WM. PEARCE COUES, M.D.

31 Massachusetts Avenue.

AN IMPERFORATE ANUS.

BOSTON, MASS., Nov. 26, 1915.

Mr. Editor: The case of the child recently born in a western city with distressing deformities, a case which has received altogether too much publicity, brings to mind the following incident:

Many years ago a man brought his son, 14 years old, to the Boston City Hospital for an examination. The boy was operated on soon after birth for an imperforate anus and was dependent upon a pad and diaper. Having no other control over the artificial anus, he was a nuisance to himself and to his family. The father was so disgusted at his son's condition that he proposed to bring a suit for malpractice against the physician who performed the operation. In other words, he proposed to sue the doctor for saving the child's life. His main object in applying at the hospital was to secure experts who would testify for him in court.

The man was assured most emphatically that the physician had done his duty faithfully and skilfully and that there were no grounds whatever for his taking legal action. As he could obtain no experts, no suit was ever brought, so far as known to the writer.

GEORGE W. GAY, M.D.

CHANGES IN THE MEDICAL CORPS, U. S. NAVY, FOR THE FIVE WEEKS ENDING NOV. 27, 1915.

October 26, Surgeon E. B. Williams, detached Norfolk Hospital, to Marine Brigade, Haiti.

P. A. Surgeon G. A. Riger, detached, *Texas* to Marine Brigade, Haiti.

P. A. Surgeon D. G. Allen, detached, *New Hampshire* to Marine Brigade, Haiti.

P. A. Surgeon E. U. Reed, detached, N. Y. Recruiting to Marine Brigade, Haiti.

Asst. Surgeon R. A. Torrence, detached, Portsmouth Hospital, to Marine Brigade, Haiti.

Asst. Surgeon A. E. Beddoe, detached, *Tennessee* to Marine Brigade, Haiti.

Asst. Surgeon E. M. Waterhouse, detached, *Montana*, to Marine Brigade, Haiti.

Asst. Surgeon C. E. Dragoo, detached, *Nebraska* to *Salem*.

October 25, P. A. Surgeon G. W. O. Bunker, to New York Hospital.

P. A. Surgeon A. H. Dodge, from *Salem* to Portsmouth Hospital.

November 2, P. A. Surgeon A. E. Lee, to Training Station, San Francisco.

P. A. Surgeon A. L. Clifton, from N. Y. Hospital to *Melville*.

Asst. Surgeon W. G. Espach, from New York to *Nashville*.

November 3, Medical Inspector R. P. Crandall, to New York Supply Depot.

November 4, P. A. Surgeon R. W. McDowell, from *Ozark* to *Fulton*.

Asst. Surgeon F. J. Riordan, from *Tonapah* to *Ozark*.

Asst. Surgeon R. L. Crawford, from *Nashville* to United States.

November 8, P. A. Surgeon F. H. Brooks, from Marine Barracks to Norfolk Yard.

Asst. Surgeon F. H. Haigler, from *Dixie* to *Texas*.

November 10, Surgeon F. A. Asserson, to Newport Hospital.

P. A. Surgeon R. A. Warner, from Newport Hospital to New York.

November 15, Surgeon F. G. Abekon, commissioned from June 13, 1914.

Surgeon A. Stuart, to Recruiting Station, Lowell, Mass.

P. A. Surgeon S. L. Higgins, to Las Animas Hospital.

Asst. Surgeon F. H. Bowman, from *Delaware* to Marine Brigade, Haiti.

November 16, L. W. Spratling, detached, Fleet Surgeon to Norfolk Yard.

Surgeon H. O. Shiffert, from Norfolk Yard to New York.

Surgeon J. F. Leys, from New York December 1, 1915, to Fleet Surgeon, Atlantic Fleet.

November 19, P. A. Surgeon B. F. Jones, from Disciplinary Barracks, Port Royal, S. C., to Marine Barracks, Port Royal, S. C.

P. A. Surgeon H. E. Jenkins, from Disciplinary Barracks, to Port Royal Marine Barracks, S. C.

Asst. Surgeon H. Priest, from Marine Brigade, Haiti, to Norfolk Hospital for treatment.

Asst. Surgeon F. Cores, from Marine Brigade, Haiti, to Norfolk Hospital for treatment.

November 24, P. A. Surgeon D. C. Walton, from *Yorktown* to Asiatic Station, via Army Transport of January 5, 1916.

Asst. Surgeon A. N. Ross, from *Maryland* to *Yorktown*.

NOTICES.

THE AMERICAN SOCIETY FOR THE STUDY OF ALCOHOL AND OTHER NARCOTICS will hold its 45th annual meeting in the parlors of the Hotel Raleigh, Washington, D. C., Dec. 15 and 16, 1915.

This was the first society of medical men in the

world to take up the scientific study of alcohol and other narcotics. Its papers and transactions have been published in the *Journal of Inebriety*, and comprise the first scientific literature on the subject.

Thirty-two papers on different phases of the subject will be read at this meeting by specialists and distinguished medical and scientific men. These studies will be confined exclusively to the facts and conclusions from laboratory and clinical experience.

The public are cordially invited to be present. Programs can be had by addressing the Secretary,

DR. T. D. CROTHERS,
Hartford, Conn.

INFANTS' HOSPITAL, BOSTON.—A clinical meeting of the staff of the Infants' Hospital will be held at the Rotch Memorial building, 35 Van Dyke Street, Friday, December 17, 1915, at 8.15 p.m.

SUBJECTS.

- I. Intravenous Injections in Infants.
 - II. Diagnosis of Duodenal Catheter.
 - III. Demonstration of Cases.
- Members of the medical profession are cordially invited.

HARVARD UNIVERSITY AND MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

SCHOOL FOR HEALTH OFFICERS.

Special Lectures in December.

All lectures will be given from five to six o'clock on the date specified and in the amphitheatre of Building E., Harvard Medical School, unless otherwise specified. All lectures will begin promptly on the hour.

December 7. "Posture and Deformities" (3 lectures). Dr. Robert W. Lovett, Professor of Orthopedic Surgery, Harvard Medical School.

December 10. "Medical Inspection of Immigrants" (2 lectures). Dr. M. V. Safford, Medical Inspector of Immigrants, U. S. Public Health Service.

December 13. "Legal Medicine" (4 lectures). Dr. George B. Magrath, Medical Examiner, Suffolk County.

December 14. "Posture and Deformities." Dr. Lovett.

December 15. "Legal Medicine." Dr. Magrath.

December 16. "Medical Inspection of Immigrants." Dr. Safford.

December 17. "Legal Medicine." Dr. Magrath.

December 20. "Legal Medicine." Dr. Magrath.

December 21. "Posture and Deformities." Dr. Lovett.

Lectures for January, February and March will be announced at a later date.

* Dr. Lovett's lectures will be given at the Children's Hospital, Longwood Avenue, Boston.

UNITED STATES NAVY MEDICAL CORPS.

The next examination for appointment in the Medical Corps of the Navy will be held on or about February 23, 1916, at Washington, D. C.; Boston, Mass.; New York, N. Y.; Philadelphia, Pa.; Norfolk, Va.; Charleston, S. C.; Great Lakes (Chicago), Ill.; Mare Island, Cal.; and Puget Sound, Wash.

Applicants must be citizens of the United States and must submit satisfactory evidence of preliminary education and medical education.

The first stage of the examination is for appointment as assistant surgeon in the Medical Reserve Corps, and embraces the following subjects: (a) anatomy, (b) physiology, (c) materia medica and therapeutics, (d) general medicine, (e) general surgery, (f) obstetrics.

The successful candidate then attends the course of instruction at the Naval Medical School, which will begin on or about October 1, 1916. During this course he receives a salary of \$2000 per annum with allowances for quarters, heat and light, and at the end of the course, if he successfully passes an examination in the subjects taught in the school, he is commissioned an assistant surgeon in the Navy to fill a vacancy.

Full information with regard to the physical and professional examinations, with instructions how to submit formal application, may be obtained by addressing the Surgeon General of the Navy, Navy Department, Washington, D. C.

W. C. BRAISTED,
Surgeon General, U. S. Navy.

SOCIETY NOTICES.

NEW ENGLAND PEDIATRIC SOCIETY.—The thirty-ninth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, Dec. 10, 1915, at 8.15 p.m.

- I. Report of Council and nomination of officers.
- II. Report of Treasurer.
- III. The following papers will be read:
 - 1. Simple Incision in the Treatment of Pyloric Stenosis, by James S. Stone, M.D., Boston.
 - 2. Spasmophilia: Report of Ten Cases.—Etiology and Treatment, by Fred P. Webster, M.D., Portland, Me.
 - 3. Fermentative Diarrhea in Infants, by Lewis W. Hill, M.D., Boston.
- IV. Election of officers.

Light refreshments will be served after the meeting.

F. M. BUCKINGHAM, M.D., *President.*
RICHARD M. SMITH, M.D., *Secretary.*

SUFFOLK DISTRICT MEDICAL SOCIETY.—SURGICAL SECTION.—Meeting Wednesday, December 15, at 8 p.m., at the Boston Medical Library.

Address by Dr. William L. Rodman of Philadelphia, President of the American Medical Association, on "Surgery of Gastric and Duodenal Ulcer."

The discussion will be conducted by Dr. George W. Brewster, Dr. Franklin W. White, Dr. George W. Holmes, of Boston.

CHARLES L. SCUDIER, M.D., *Chairman.*
W. J. MIXTER, M.D., *Secretary.*

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.—A special meeting of the Society will be held at the Boston Medical Library on Wednesday, Dec. 15, 1915, at 12 o'clock, noon.

Paper:

Dr. William W. Walcott of the State Department of Health will speak upon the following subject: "Field Work of the State Department of Health on Communicable Diseases."

Dr. Eugene R. Kelley, Director of Division of Communicable Diseases, State Department of Health, will open the discussion.

Lunch will be served at 1.15 p.m.

LYMAN S. HARGOOD, M.D., *Secretary.*
6 Garden St., Cambridge, Mass.

APPOINTMENTS.

CREIGHTON MEDICAL COLLEGE, OMAHA.—Dr. Robert Retzer of the University of Chicago has been appointed professor of anatomy at the Creighton Medical College; and Dr. G. W. Earle has been appointed instructor in pathology and director of the clinical laboratory.

The Boston Medical and Surgical Journal

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Original Articles.

DISINFECTION OF SEPTIC JOINTS.*

BY FREDERIC J. COTTON, M.D., F.A.C.S., BOSTON.

INFECTED joints have always been a reproach to our art; their treatment the counsel of despair.

A suppurating joint, infected from without or from within, has been counted among the lost, and not only joints, but lives—many lives—have been lost as well. Nothing could be worse than the story of joint drainage. Today the opening and drainage of joints should be listed not as an operation but as a crime. It is our duty today either to determine and declare a joint infection hopeless, and then to *lay the joint wide-open (not drain it)*, or else to bend all our efforts to an *optimistic attempt to save the joint*; not only to get it healed, but to preserve its function as well.

Years ago, about ten years, I was engaged in opening and washing-out gonococcal joints, as were many others. During the course of this work I learned as a purely empiric matter that such gonococcal joints, whether in the small minority showing positive culture, or the many that gave no viable cultures, that these joints did better if sewed up tightly, than if left to drain through loose suturing; while wick or tube drainage proved, as all have since recog-

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nized, no less than disastrous to future function.

Not long after this series had crystallized in my mind the desirability of efficient disinfection and closure in these cases, there came to my hand some cases of really *septic* joints (for the gonococcus is but a facultative pus organism after all), joints with staphylococci particularly, and a few streptococci joints. These I treated in the same way, sewing the capsule tight, and gradually evolved a definite technique: opening of the joint; irrigation for fifteen minutes (by the watch) with a full stream of 1:15000 corrosive sublimate; a flushing-out of the excess with salt solution; then a water-tight closure of the capsule by mattress and single sutures in such a way as to leave the synovial membrane cut edge to cut edge, as accurately as may be. Usually the membrane is so swollen as to make this really possible.

The external wound is left wide open or nearly so, for it must be conceded that real disinfection of the external soft tissues is not practicable. After operation there may or may not be an effusion into the joint; if an effusion comes it goes again within one to three days, and is not accompanied by temperature or by any considerable discomfort.

I have not in these cases, with two or three exceptions, resorted to traction for the separation of joint surfaces. There has seemed to be no pain-factor constituting a clinical demand for such treatment, and I see no theoretical reason for it, for these joints show little or no spasm.

* As a rule the best way is to distend the joint; then let it collapse and empty; then distend again. Accurate reaching of all parts of the joint by a direct stream is almost impossible.

There have been about two dozen such cases treated by this technie, excluding the gonococcus cases, not less than fifteen of them representing infections by staphylo- or strepto-cocci; the majority staphylococcus infections. In looking up the cases for this paper, I have been rather appalled by my inability to find well remembered cases in the hospital records of years ago; cases of failure as well as successes.

There have been two failures: one a punctured wound of the knee in a male adult; treated according to this technie but with a recurrence of the streptococcus infection; laid wide open; patella laid back on thigh; later (after vaccine treatment) subjected to a cleaning-out of granulations from nearly intact cartilage and suture of divided ligaments, regaining in the end a good leg with 45 to 50 degrees of motion. The second case was a knee with an epiphyseal staphylococcal infection in a boy of three; cleaned out and sutured; later the joint broke down and an ankylosis resulted.

The rest have all done well; I cannot give nearly all, and will rest my case on six instances, covering seven pus joints disinfected and sewed up successfully.

CASE 1. Barbara S., aged 10; seen in consultation with Dr. John MacDonnell of South Boston. History of having hurt her knee in jumping down into a cellar and having a few days thereafter noticed tenderness and lameness gradually increasing. The fall was about two weeks previous; she had been in bed a week when seen, with great pain and steady fever. Physical examination showed a sturdy young Polish girl; nothing of note save the right knee, which showed great distension of the joint, tenderness and limitation of motion, with local heat, but without redness. I sent her into the City Hospital for immediate operation, as a septic joint, of the osteomyelitic type; one of the juxta-epiphyseal infections.

The same day, Jan. 16, 1909, I operated under ether. The joint was opened on the inner side and found full of thick, creamy pus. Usual irrigation with $HgCl_2$ followed by salt, and the joint closed in the usual way. Then through an incision on the outer side, a large popliteal abscess was opened and drained. The cultures taken from both joint and abscess were reported as staphylococcus pyogenes aureus by Dr. Mallory.

The temperature at entrance was 102.5 degrees, but three days later reached 99 and ran along about that level for some time. At eight days there was no fluid in the joint; tenderness was less; wound over joint nearly closed. Deep sutures held; there was no joint leakage. Two weeks after the operation, the joint was all right, but there was more pus from the popliteal space. This continued. An x-ray taken showed a sequestrum and it was decided to remove it.

March 15, 1909, under ether, I removed a sequestrum $2 \times 2 \frac{1}{2} \times 3 \frac{1}{4}$ inches from the femur, exactly at the back, starting at the epiphyseal line and running np. The temperature went up the next day and then down permanently.

March 28, 1909. Still draining from sinus behind;

joint wound healed; knee joint motion of 60 degrees discharged to the out-patient department.

About a year later, I removed a little bone chip with forceps; function of the knee had been perfectly good before that. After this chip came away, the sinus promptly closed.

I sent for this girl and examined her a year ago; five years after the operation. She has grown big and strong, and save for the shin scars, the two knees cannot be told apart; an absolute restoration, anatomically and functionally. She can sit on the heel of this leg.

This case was exhibited before the Clinical Surgical Congress October 28, 1915.

CASE 2. Pat. F.; seen in consultation with Dr. Thomas F. Carroll of Brookton; then of Norwood, Mass., Aug. 7, 1912. The patient, a man of 40, had an old scar and had had a childhood osteomyelitis, leaving some lameness and an old scar on the inner side of the thigh. The story was that he had then been some seven weeks ill; bedridden and feverish; that the knee had been opened by some doctor. Owing to his extreme deafness, detail data were scanty. There was, as Dr. Carroll had recognized, an infection of the joint as well as a recurrence of the old osteomyelitic trouble. The joint was full. The man's general condition was very poor indeed; an anemic factory worker to begin with, dragged down by seven weeks' of sepsis. Subnormal temperature at the time.

I got him into town, and into the City Hospital, and operated the next morning, under ether, with a three-inch long incision of the outer side of the knee. There was a large amount of thinish pus in the joint, under much pressure. There was no change in the joint surfaces, beyond slight purple tinting and minimal swelling of the synovial membrane. The joint was irrigated in the regular way; 15 minutes of corrosive; then salt. It was then carefully sutured—the capsule with No. 1 chromic gut and the skin with silk-worm gut,—then, on account of the presence of pus all about the wound, a sealed dressing was put over it. Then an incision on the inner side of the femur opened up the expected pocket in the condyle, which was cleaned of debris and packed. The wound into the joint leaked some serum, but never any pus, even from the skin wound. There was never any synovial leakage. This wound was protected from outside infection by intermittent sealing until it closed solidly Aug. 23. Cultures taken at operation showed staphylococcus pyogenes albus, both in the pus from the joint and in that from the bone. September 9 under ether, a sequestrum was removed from the internal condyle about $1 \times 1 \frac{1}{2} \times 1 \frac{1}{2}$ inches. October 10, 1912, he went home with a small bone sinus but with free joint motion.

Later reports from Dr. Carroll were of a persistent small bone sinus but never any recurrence of joint symptoms or of effusion in the joint. He never regained full motion, but got serviceable motion; as good motion as he had had before the knee joint infection.

CASE 3. Antoinette De L., aged 6; admitted to the City Hospital June 12, 1914, under Dr. David Scamell, for a septic elbow wound, ten days old. This appeared to clean up and June 22 she went to the out-patient department for dressings. On July 10, 1914, 38 days after the injury, she was readmitted and came to my service. The left elbow was tender and swollen with a granulating wound and

sinus, the sinus obviously going into the joint. There was motion of 30 degrees and there was little or no spasm. (It is remarkable how little spasm there is to a septic joint in comparison to a T. B. joint, for instance, owing, I think, to the fact that in sepsis, the process is in the synovial lining, not primarily in the articular ends of the bone). An x-ray showed haziness about the lower end of the humerus; no focal lesion.

July 12, 1914, operation under ether. Oblique incision cutting the triceps tendon; very little thin pus in the joint. Joint surface of humerus showed some loss of cartilage; cartilage of radius and ulna intact. Synovial membrane red, spongy and in spots ragged. Usual irrigation preceded by carbolic 95% to the raw humeral surface; excess cleared, as usual, with alcohol. Then the corrosive and then salt solution and closure of the capsule and suture of the triceps tendon. Then carbolic and alcohol to the outer wound and only two or three loose sutures in the skin. Cultures showed mixed infection with staphylococcus predominating.

July 20 (eight days) deep wound entirely solid; only serum from outer wound. July 24, wounds all healed; 45 degrees of joint motion. Discharged to the out-patient department for exercises. Seen two months later at which time there were very definite adhesions and motion was pretty much gone; child in excellent condition.

In this case the patient came to operation after there was real damage to the synovial joint surfaces, too late to prevent adhesion, but the joint disinfection and the aseptic closure of the joint worked perfectly well, despite the unfavorable conditions.

CASE 4. Lloyd S., aged 9. After a slight trauma, developed a knee-joint effusion with temperature. The joint was tapped and clear fluid obtained; a second tapping showed pus. About a week after the first effusion appeared, the joint was opened on either side and drains introduced. Nine days after this, he came into my hands, the drains still in situ. He had just come on a stretcher from middle Pennsylvania to Boston, and was not in the best of shape, though a healthy boy.

On Aug. 29, 1914, I operated under ether; laid the joint open on either side, excising the granulating wounds, in which the gauze drains lay; washed out as usual with 1-15000 corrosive, and then with salt solution, and sewed up the capsule tight, leaving the outer wound almost wide open.

The temperature fell directly and though a little suppuration developed after five days, near the upper end of the quadriceps pouch, it yielded to camphorphenol dressings promptly.

Restoration of motion to 45 degrees was prompt and painless. Here we met a check and on Nov. 28, 1914, under primary anesthesia, some adhesions were ruptured. From then on restoration of motion was rapid until 90 degrees was reached. Now motion is almost perfect; function as good as new.

In this case, owing to the long duration of infection, there was some loosening of ligamentous capsule, and an apparatus was worn for a time to counteract the tendency to backward subluxation of the tibia. There is now nothing left of this. This patient was shown to the Clinical Surgical Society last fall.

There is some question whether this infection was from within or without. There was, I understand, a bitter local difference in Pennsyl-



FIG. 1. CASE 4.
Taken at his home in the fall of 1914, and sent to me.

vania owing to the allegation that the first man's trocar had infected the joint. Cultures at the first opening are said to have been mixed staphylococcus and streptococci. When the case came to me, cultures showed straight staphylococcus pyogenes aureus. I believe it to have been a case of hematogenous infection starting near the epiphysis, as in our first case, though in this case, no sequestrum developed. The important point in this case, like the last, is that the joint was an open infected joint, and in this case had been open for nine days with drains in the joint, yet real disinfection was possible.

In February, 1915, Dr. E. H. Place, in charge of our "South Department" infectious hospital, having heard of some of the cases, asked me to see a case there. He told me that, in all the years of his experience there, the South Department had never saved a septic joint, to say nothing of the mortality in these cases, and in convalescence from diphtheria and scarlet fever, such septic joints are not very unusual.

The case to be seen was a post-diphtheritic suppuration of the elbow.

CASE 5. The patient, Isaac G., 8 years old, was admitted for diphtheria Jan. 17, 1915. The infection had attacked the larynx as well as the fauces and tonsils. He was promptly intubed. So far as the K. L. infection went, he did fairly well, but on Feb. 8, 1915, had developed multiple arthralgia with a distinct septic type of temperature.

Feb. 10: temperature remained up; of septic type; fluctuation evident in left wrist; right elbow and right ankle; much pain.

Feb. 11th: I saw him and operated immediately under ether.

The wrist and ankle infections were merely periarticular abscesses. The right elbow joint was, however, full of thick pus. It was opened on the outer side and irrigated and sewed up, according to my technic, the external wound being left entirely open. The culture was reported as pure staphylococcus aureus.

Feb. 16: The note says—"elbow healing up rapidly; no discharge; no limitation of motion; no discharge from right ankle; temperature gradually approaching normal."



FIG. 2. CASE 4.
Further pictures of Case 4. Taken at the same time as Fig. 1.

Feb. 18: Left hip swollen and tender; temperature slightly elevated.

Feb. 20: Operation on left hip. In this joint the capsule was already "blown-out" and gone. The joint was washed and drained but not handled ac-

ording to my technic; it could not be!

Mar. 7: Periarticular infection at the ankle

opened up.

Mar. 20: Elbow wound healed; motion perfectly free.



FIG. 3. CASE 5.
On the left flexion of the disinfected right elbow; on the right full extension taken about ten weeks after operation.

Apr. 23: Discharged to my ward in the main hospital. At this time the elbow joint was perfectly normal. The infected hip healed and did well but has nothing to do with the especial technic under discussion.

The photographs show the result in the elbow joint.

This was a pyemic joint in a child who was in a wretched condition after a long siege of severe diphtheria. The result speaks for itself.

CASE 6. The second case at the South Department was Charles F., a boy of seven years, who entered the hospital Mar. 17, 1915, then being six days ill. He had a rather severe scarlet fever; typical. For ten days nothing happened; then after lysis his temperature came to normal.

Mar. 28: He had paracentesis performed on right ear.

Apr. 5: Left drum punctured.

Apr. 6: Right mastoid infection showed itself.

Apr. 7: Operation on right mastoid.

Apr. 16: Pain complained of in left elbow joint; some swelling and fluctuation; exquisite pain on motion.

Apr. 19: Left elbow joint opened under ether; about three ozs. of thick yellow pus were obtained. Joint dealt with in the usual way, washed and sewed up. Culture showed streptococcus pyogenes.

Apr. 21: Joint showed no signs of infection, though the temperature still remained up. At this time a bronchopneumonia appeared.

Apr. 22: Pain in the right knee; much tenderness to pressure or on motion; swelling and fluctuation.

Apr. 24: Pain on dorsum of right foot.

Apr. 26: Operation on left foot (a periarticular abscess) and on the right knee. From the knee about 5 c.c. of blood-stained pus was obtained; rather thin. The joint was washed and closed in the usual way. Cultures later showed a mixture of staphylo- and streptococci. At the same time an extra-auricular hip abscess was opened. The next day the temperature was normal.

May 2: The left elbow showed a perfectly mobile joint, with the external wound clean, if not aseptic. The right knee showed some recurrence of effusion and a good deal of tenderness to touch, but the process seemed to be essentially extra-articular.

May 11: Pulmonary consolidation appeared; temperature 101; pulse 130 to 170.

May 12: He died.

Autopsy showed not only pneumonia, but a basal meningitis. Both joints were clean; the elbow was as good as new in every way; it was not opened. The knee showed a bit of periarticular infiltration and an ounce or two of effusion; was opened up; fluid clear and proved sterile. Specimens taken from the joint showed no bacteria in the tissues by any of the various stains. The synovial membrane showed a little fibrin at the surface; a little inflammatory reaction; a trifling infiltration with leucocytes; that was all that we could find. Dr. F. B. Mallory kindly went over the slides with me, and expressed it as his estimate of the intensity of the process that it was about what you would expect after an irrigation with corrosive or other moderate irritant.

Here is a case, most unfavorable in every way, unable to handle his finally fatal general infection yet, despite the feebleness of resistance, two seri-

ously-infected joints were disinfected one after another and remained clean. One returned absolutely to normal condition; the other stayed sterile and was nearly normal before his death from meningitis. Unfavorable as the result was, as to survival, no more conclusive test of the efficiency of this method of joint disinfection should be asked for.

Just what happens after disinfection I do not profess to know clearly; the procedure has been one of gradual empiric growth, based purely on the clinical findings. Whether the corrosive used remains behind in sufficient quantity to impair the growth of bacteria, or whether the synovial infections we have so long dreaded are, after all, only *surface* joint infections, at first, is hard to say. I am inclined to the latter view, but dare not omit the corrosive.

Those of us whose lot it has been to watch the horrid progress of drained joints, know that it is not the pus in the joint so much as the pus steadily draining from the joint reservoir into the soft tissues of the thigh, behind and above the knee, for example, that kills. We shall all, I think, incline to the hypothesis that the joint itself is more tolerant to sepsis than the books give it credit for; to believe that surface disinfection plus natural resistance may be the answer. However this may be, the fact seems established that this technic suffices for an efficient sterilization of joints infected not only by the facultative pus organisms, but also by the frankly pyogenic bacteria.

In the milder cases (as in the gonococcus joints) the advantage of an open washing is mainly in the removal of debris that contributes to later adhesions; in the septic cases it seems that actual removal of infection is accomplished.

There is one very definite limitation to this method. I have not yet worked out any scheme for using this scheme in infection of the closed joints, hip, shoulder, ankle, etc.; joints that are non-distensible by pus or irrigation fluid. Given such a joint, the capsule is already gone before we reach the ease. Disinfection may be tried, but closure of the joint is not practicable. Such successes as I have had in the treatment of such cases by disinfection with camphorphenol dressings have no bearing on the matter in hand.

In such cases there is much to be said for Murphy's formalin glycerin injections, if the process can be diagnosed before capsule rupture; later I can see little chance even for this method. In the distensible joints, on the other hand—the knee with its quadriceps pouch, the elbow with its subtricipital joint space, pus can collect in considerable amount, enough to be obvious, long before there is tension enough to threaten the integrity of the capsule.

In these cases, I believe the technic here presented to be the procedure of choice. All septic products present, fibrin as well as pus, are removed. The efficiency of disinfection is, I think, pretty well shown. The results are not pretty good only, but nearly always perfect.

THE BACTERIN TREATMENT OF CERTAIN CHRONIC PYOGENIC DERMATOSES.

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AND

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THE attention of the writers was attracted by the number of cases of chronic pyogenic dermatoses in the Skin Clinic of the Massachusetts General Hospital, in which, it seemed to them the results were unjustifiably poor. Investigation developed the fact that the "failures," almost without exception, had been treated solely by external methods of various kinds for considerable periods of time. It was rarely that a case was found in which bacterin therapy had been used. It seemed to them that the opportunity to determine the comparative value of bacterin treatment and the prevailing external procedures, could not be passed by. This series of experiments was the result.

The following conditions were adopted for the conducting of the work:—

All cases must be chronic, that is, the duration of the disease must be three months or over. In two or three patients the history was less than three months, but they presented very extensive lesions.

The cases should be selected from the failures of previous methods. Some few had not been treated at all when they were admitted to the clinic, but the lesions were of such character that it was thought best to institute bacterin treatment at once. All external treatment was forbidden. Under the stress of unusual conditions a few exceptions were made to this rule, which are duly recorded below. Internal disturbances were to be corrected as far as possible, and every effort made to put the patient in the best physical condition.

Strict rules were to be given for the hygienic care of the person; unsanitary conditions remedied when possible; the bodily functions regulated and the diet revised and prescribed.

Seventy cases were selected for the experiment, in whom occurred the following diseases: acne vulgaris, 35 cases; furunculosis, 21 cases; folliculitis, 14 cases. In order to give the investigators a still broader scope by comparing the relative efficiency of autogenous and stock bacterins, the seventy cases were roughly divided into two groups, one of which was to receive only autogenous and the other stock preparations. In both instances, however, the bacterins employed were made by the writers themselves. No commercial products were used. When the autogenous bacterins were made, a large amount was prepared and the excess used as the stock preparations.

The actual method of making the bacterins was as follows: The contents of the lesion was planted upon glucose agar slants and incubated at 37.5°C. for the succeeding twenty-four hours. The growth was then examined to determine its vigor and purity. (If more than one kind of bacteria was discovered, the various colonies were counted and the relative number of the respective colonies determined, sub-cultures were then planted, and from these a bacterin was made which retained the same relative number of organisms.) If a vigorous growth was obtained, it was macerated with a platinum loop, mixed thoroughly with a one-third of one per cent. carbolic normal saline solution, which was added until a certain opalescence was secured and allowed to stand for fifteen minutes. The supernatant fluid was pipetted off into a sterile container and the organisms counted by both Wright's method and the counting chamber. To this concentrated mixture, saline solution, containing one-third of one per cent. pure carbolic acid to the e.c., was added until the resultant mixture contained approximately a half billion organisms to the cubic centimeter. The suspension was heated for twenty minutes at 56°C. and allowed to stand at room temperature for four days. During this time it was planted three times upon agar slants, and if no growths were found it was ready for use.

It was our practice to give an initial dose of not less than one hundred million and not over four hundred million killed organisms. The last injection was often two billion. The total number of doses rarely exceeded ten and the interval between was from four to ten days.

The administration of bacterins was governed by the local reaction at the point of injection, such as redness, heat, slight edema, and tenderness upon pressure which appeared within four to twelve hours after administration and sometimes remained as long as forty-eight hours. If this reaction did not occur either at the first or any of the subsequent injections, a new preparation was made and administered. The ineffectiveness of the first bacterin was in all probability due to the fact that the right organism was not recovered or that the preparation had been injured in the process of manufacture.

The general reaction was usually so slight that it escaped the attention of the patient. When there was an increase in the intensity or number of eruptive elements, the following dose was much smaller and was given when the untoward symptoms had subsided. If the patient improved up to a certain point and then remained at a standstill, a new bacterin was prepared and administered for the following reasons: first, the old preparation might have lost its potency, or second, the organism might have built up an immunity to their own toxins.

If the patient grew progressively worse after each injection of bacterin this mode of treatment was discontinued as it was found to be very difficult to raise the patient's resistance to the

specific organism again. In two cases of sycooses this phenomenon was observed.

General Treatment. All patients who belonged to the acne group were closely questioned concerning their hygienic surroundings, their mode of living and their attention to the bodily functions. It was found that the great majority disregarded the most simple rules of skin hygiene, such as frequency of bathing, gentle removal of comedoes, etc. Many of them ate their meals at irregular hours and did not select their food with the proper care. All of them either volunteered the information that they were constipated or admitted it when questioned.

The acne patients were instructed to rub the lather of a non-irritating soap (castile or any standard soap which does not contain an excess of alkali) in the affected parts and to follow this immediately with cloths wrung out of hot water. After this procedure the comedoes were very easily removed with a suitable instrument. This was followed by the application of hot and cold cloths used alternately for five minutes. Lesions containing pus were to be opened immediately with a sterile needle. All patients were encouraged to remain in the open air as much as possible.

Diet for Acne Patients. Each person was placed on a coarse vegetable diet, to which he was rigidly held during the whole course of the treatment. In order to reduce dietary errors to a minimum, the patient was instructed to carry a small note-book in which he jotted down each article that he ate at every meal and any article that he wished included in his diet. This book was inspected at the end of each week, and all undesirable things were forbidden for future ingestion. The central idea in this diet was to secure a large bulk with a comparatively small amount of nutrition, and yet so balanced that

the total caloric value would not be less than that demanded by the human organism. Milk, eggs, fat meats, butter, potatoes, bananas, pastries, soups and all highly seasoned or concentrated foods were prohibited.

The breakfast consisted of fruit, wheat bran with an equal part of dry breakfast food and cream, graham toast and honey, and coffee with cream. For luncheon the following was given: cold meat (roast beef, veal, mutton or fowl), two coarse vegetables (beets, carrots, turnips, parsnips, sweet potatoes, cabbage, green beans or peas, sweet corn, egg plant, radishes, tomatoes, lettuce, etc.), and stewed fruit. The dinner consisted of meat (beefsteak, lamb chop, fish or fowl), two coarse vegetables, fruit salad, coffee or tea. Graham bread was eaten at all meals. The purpose of the diet was twofold, first to correct the constipation and second to prevent over-eating; both results were secured in a most gratifying manner.

Tabulation of Cases. It was thought best to tabulate the series. The cases were divided into:—

Acne.

1. Furuncular type,—large deep-seated lesions containing much pus and somewhat resembling furuncles.

2. Deep indurated type,—large pea size lesions containing some pus and a larger amount of caseous material.

3. Comedo type,—small shallow lesions containing a central comedo embedded in pus.

Furunculosis.

Ordinary boils occurring on various parts of the body.

Folliculitis Staphylogenesis. (*Sycosis Vulgaris*.)

Pyogenic involvement of the hair follicles in the bearded region. In one case the pubic region was involved also.

TABLE I.—ACNE VULGARIS.

TYPES	CASES TREATED.		APPARENTLY CURED.		BENEFITED.		NO BENEFIT.		PER CENT. COMPARISON OF AUTOG. AND STOCK BACTERINS.	
	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.	Autogenous.	Stock.
Furuncular	4	3	1	0	2	2	1	1	25%	0%
Indurated	6	12	6	7	..	1	..	4	100%	55%
Comedo	6	4	2	1	3	3	1	..	33%	25%
	<u>16</u>	<u>19</u>	<u>9</u>	<u>8</u>	<u>5</u>	<u>6</u>	<u>2</u>	<u>5</u>		
Total treated....	35	Cured....17	Benefited.11		Failures..7					
			50%		35%		15%			

TABLE II.—FURUNCULOSIS.

CASES TREATED.	APPARENTLY CURED.		BENEFITED.		NO BENEFIT.		PER CENT. COMPARISON EQUAL.	
	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.
	9	12	9	12	..	..	..	..
Total treated....	21	Cured....21					Equal	
			100%					

TABLE III.—FOLICULITIS STAPHYLOGENES.

CASES TREATED.	APPARENTLY CURED.		BENEFITED.		NO BENEFIT.		MADE WORSE.		PER CENT. COMPARISON.	
	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.
	9	5	5	2	3	0	1	1	0	2
Total treated..	14	Cured....	7	Benefited..	.3	Failures..	.2	Aggravated..	.2	
		50%		20%		15%		15%		

TABLE IV.—CASES EXAMINED ONE YEAR LATER.

ACNE VULGARIS.	FURUNCULAR.				INDURATED.				COMEDO.		FURUNCULOSIS.		FOLICULITIS STAPHYLOGENES.	
	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.	Autogenous.	Stock.
Total	24	2	0	3	2	2	1	5	1	0	6	2		
Recurrences in apparently cured cases	0	0	0	0	0	0	1	0	1	0	1 slight recurrence	0		
Condition of cases primarily benefited		1 worse									1 cured			
Condition of cases not primarily benefited		1 better									1 much improved			
Originally treated ..	4	3	6	12	6	4	9	12	9	9	2 in the same condition	5		
												5	Total 70	

TABLE V.—ANALYSIS OF CASES SUCCESSFULLY TREATED WITH BACTERINS.

ACNE VULGARIS.	AVERAGE NO. DOSES. BACTERIN.		OPTIMUM TIME BETWEEN DOSES.		OPTIMUM SIZE OF DOSES IN HUNDRED MILLIONS.	
	TYPES	Autog.	Stock.	Autog.	Stock.	Autog.	Stock.
Furuncular	7 to 9	7 to 9	5-7 days	7 days	2-15	2-10
Indurated	6 to 10	7	5-7 days	7 days	1-15	2-20
Comedo	8	9	4 days	7 days	2-15	1-10

TABLE VI.—FURUNCULOSIS.

AVERAGE NO. DOSES. BACTERIN.	OPTIMUM TIME BETWEEN DOSES.		OPTIMUM SIZE OF DOSES.	
	Autog.	Stock.	Autog.	Stock.
4	5	4	7	2-15

TABLE VII.—FOLICULITIS STAPHYLOGENES.

AVERAGE NO. DOSES. BACTERIN.	OPTIMUM TIME. BETWEEN DOSES.		OPTIMUM SIZE OF DOSES.	
	Autog.	Stock.	Autog.	Stock.
4	4	7	7	2-10

TABLE VIII.—RELATIVE OCCURRENCE OF ORGANISMS IN ALL CLASSES OF LESIONS.

Furuncular.	ACNE, 25 CASES		Comedo.	Furunculosis, 21 Cases.	Folliculitis Staphylogenesis, 14 Cases.	Total, 14 Cases.
	Indurated.	Autog.				
Staph. albus	1 case	18 cases	10 cases	0	7 cases	36
Staph. aurens.....	0	0	0	18 cases	4 cases	22
Both	6 cases	0	0	3 cases	2 cases	11
Staph. albus					1 case	1
Strep. pyogen.						

An examination of the tables gives, in a concise form, the following facts:—

Sixty-four per cent. of all cases treated by bacterins were apparently cured, twenty per cent. were benefited and sixteen per cent. received no benefit whatever.

Autogenous bacterins were superior to stock, indurated type. The comedo type responded excepting in the treatment of furunculosis, where no difference could be seen.

In most cases a permanent cure resulted from the use of bacterins. This contention is supported by the fact that there were only two recurrences in those who reported at the end of one year.

In acne the best results were obtained in the indurated type. The comedo type responded less favorably and the furuncular type least favorably.

Of the three pyogenic dermatoses, the best results were secured in furunculosis.

The action of bacterins in the treatment of syrosis was very erratic; in one case of twenty years' duration where external treatment had been faithfully used for five years and where stock bacterins had been administered, autogenous bacterins were used with remarkable success. On the other hand two cases were very much aggravated by this form of treatment.

The average number of doses administered in successful cases was, eight in acne, four in furunculosis, and four in syroses.

In nearly all cases the initial dose was two hundred million, and the final, one to two billion, killed organisms.

The most favorable interval between doses was found to be five days in acne, four days in furunculosis and seven days in syroses.

Pure cultures of the staphylococcus albus were found in all the cases of indurated and comedo type of acne and in seven of the fourteen cases of folliculitis. Mixed cultures of the staphylococcus albus and aureus were found in six of the seven cases of furuncular acne and in three of the twenty-one cases of furunculosis, and in two of the seven cases of folliculitis. Pure cultures of the staphylococcus aureus were found in eighteen of the twenty-one cases of furunculosis. One case of folliculitis showed a mixture of staphylococcus albus and streptococcus pyogenes. Mixed cultures were grown from the lesions of sixteen per cent. of the patients in this series. This clearly demonstrates the fact that the offending organisms should be determined by culture before a patient is given stock bacterins. It would be better to say that because of this fact autogenous bacterins should always be given when possible.

In furunculosis and in the successful cases of folliculitis staphylogenies, bacterins are in all probability directly responsible for the cure of the patient; but this assertion cannot be proven to be true in the treatment of acne. It is not the purport of this paper to establish that claim. The main object in all bacterin therapy is an attempt to raise the resistance of the individual to the specific organism which is responsible for the pyogenic formation. When pus is no longer present in the acne lesions the result of bacterin treatment has been secured; but this treatment cannot correct those faults which underlie the formation of these lesions, and for that reason the general treatment, as already described, was instituted, and to this due credit is given for the part it played in the treatment of acne.

In conclusion we wish to thank Drs. C. J. White, Harvey and Towle for the privilege of studying these cases and for their valuable suggestions in the preparation of the manuscript.

ALOPECIA SYPHILITICA.*

BY DOUGLASS W. MONTGOMERY, M.D.,
SAN FRANCISCO.

THE baldness of syphilis is not always a definitely characteristic symptom, but it is a very important one when typical, and may be the only one to attract attention. This is particularly true as regards observation by the patient, with whom anything relating to a fall of hair is usually a matter for anxiety, and with whom also the other slight symptoms of a mild syphilis in the secondary stage may escape notice, for the alopecia of syphilis occurs only in the secondary stage of the disease. On the part of the physician also a knowledge of the peculiarities of this form of alopecia may lead to a search for other luetic symptoms, and so clear up an otherwise puzzling condition.

As before remarked, luetic baldness is not always definitely characteristic. It may be a simple defluvium such as occurs in all the fevers, or it may be almost complete of a very considerable area of the scalp, simulating alopecia areata. Syphilis, however, does sometimes cause a baldness that is so typical as to be almost pathognomonic of the disease. It consists of thinned out, irregular, indefinitely bordered places about the size of the end of a lead pencil or less, making the hair look as if it had been cut by running the point of a scissors up into it. If the hand is swept up the back of the head, bending back the hairs, a vast number of little bald spots will be brought into view. The French call these patches *clairières*, which is delightfully descriptive when one reflects that a *clairière* signifies an open or cleared space in a forest, where all the trees are not necessarily gone, but are thinned out. These cleared areas are most numerous over the sides and back of the head, exactly in the situations where in a man they are most observable, so that even if they escape the patient's own observation they rarely do that of his neighbors, who may be relied upon with neighborly friendliness to call them to his attention.

When the ordinary baldness of advancing years is beginning and the scalp can be seen faintly at the back of the head in the neighborhood of the whorl, it is said that "the moonshine is breaking through": carrying out the same comparison in the present affection, instead of one, fairly large, centrally located area, there are numerous thinned out, light patches, comparable to the "starlight" appearing through the clouds.

Besides the characteristic alopecia of the scalp, there may be a less characteristic one of the eyebrows. In such cases the hairs fall from the outer third of the brows, or there may be a patchy alopecia dividing the brow into two or three parts. This is called "*la signe de l'omnipotence*".

* Read before the Pan-American Medical Congress, San Francisco, Cal., June 18, 1915.

bus," the sign of the omnibus, because if one sits opposite to the person, as in an omnibus, a snap diagnosis may be made. Such "snap" judgments, however, are not to be encouraged, and if such an irregularity of the brows is noticed, it is better to employ it rather as a hint to look for further symptoms than as one on which to base a diagnosis. In the street cars one can easily observe what a vast number of brows there are that depart from the assumed normal graceful curve. There are those that are naturally almost eyebrowless, and there are others that have a bushy black bar passing straight across above the nose, so that if there were many such the term glabella would never have been invented. Between these two extremes there are all sorts of irregularities.



FIG. 1.

Alopecia syphilitica in a young man suffering from early constitutional syphilis. The patches are very small and the baldness is temporary.

As an instance of the importance of this apparently trivial symptom take the case of a young man who called for advice last September for a patchy thinning out of the hair, principally over the back of the head, and a generalized thinning out of the eyebrows. He complained of nothing else whatever, and would not have called excepting for the remarkable appearance his trouble gave him. And there was nothing more remarkable about his alopecia than just that there were thinned out spots scattered quite thickly over the back and sides of his head, with no alteration whatever in the scalp as regards an eruption, or increase of dandruff, or itchiness. And yet the condition was typical, and could not be due to anything else than syphilis.

A search for luetic symptoms revealed a fading roseola, with a generalized adenopathy, with the largest nodule in the left groin, indicating the location of the primary sore in some situation where the lymphatics emptied into the groin glands. On the inner surface of the prepuce there was a hyperemic edematous patch centered by a cicatrix. He then admitted having contracted gonorrhea four months before, and said that there appeared about a month afterwards a "Narbe," or cicatrix in the above-mentioned spot. A month after this, that is, about two months before coming to me, he was confined in a hospital under a physician's care for two weeks on account of a dropsy in the legs. Although he then had the alopecia, neither it nor any of the other luetic symptoms had attracted notice, and the cause of the dropsy in the legs had not been ascertained.

The history of this dropsy rendered a careful examination of the urine necessary as it might have been due to nephritis, an occasional accident in the course of secondary syphilis. Nothing was found indicative of this, however. A treatment with salvarsan and injections of grey oil was promptly instituted, with a consequent rapid disappearance of all the syphilitic symptoms, including the characteristic alopecia.

Another interesting point was that shortly, without any treatment at all, the syphilitic symptoms in this man would have completely vanished, leaving him absolutely unaware of the nature of his infirmity. Even the growth of hair would have undergone restitution, because the alopecia of syphilis never gives rise to permanent baldness.

Another still more interesting point in these cases of mild secondary syphilis is that they are more apt to be followed by grave visceral syphilis and lesions of the nervous system, such as tabes, than the severer ones. The opinion that this is so is gaining ground, and is attributed by some to a difference in strain in the invading spirochete. These grave consequences may be due, not to a difference in the micro-organism, but to the lack of vigorous treatment, or even to the entire absence of treatment, as nearly happened in the instance above mentioned.

In another case the problem was a different one, and shows what an infinite variety there may be in even such a simple symptom. A negro applied for advice on account of falling of hair that he had noticed for the past month. He showed the characteristic, scattered, patchy thinning out, and a search was instituted for other symptoms.

He had had an eruption on the face five or six months previously that had evidently been papular, as he used to cut it on shaving. Later an eruption appeared scattered over the body as sealy papules, which only itched on changing his clothes at night. About two months before coming to me he had feverishness at night with profuse sweating that had lasted for about two

weeks. During the time the eruption was out he was under the care of a man who was accustomed to treat syphilis, but who evidently had not made a diagnosis of lues. Such a slip is, however, not to be too severely criticized, as physicians in this city are, as a rule, unaccustomed to seeing syphilitides in negroes, in whom the cutaneous rashes differ decidedly in their appearance from those seen in whites. Furthermore the papulo-squamous eruption that this man probably then had, is one that is notoriously deceptive. However this may be, when he applied to me for treatment there was no eruption present either on the mucous membranes or skin, but he had many darkly pigmented spots, evidently the remains of a previous eruption, on the forehead, shoulders, lower part of the back, arms and legs. Those on the forehead were the most significant, as being possibly the result of a corona veneris, and the popular syphilide had probably extended back across the scalp and was presumably the immediate cause of the areolar fall of hair. This was just the kind of case in which a Wassermann test was desirable as substantiating a diagnosis, and it turned out to be markedly positive.

The alopecia quickly cleared up under neosalvarsan and mercury.

If one assumes, as seems reasonable, that the injury done to the shaft and follicle by a foregoing eruption is responsible for this patchy fall of hair, then the time of the incidence of the alopecia would indicate that the early cases would be due to an early eruption, and the later cases to a later eruption. For instance the alopecia of the first patient mentioned in this paper was coincident with a fading roseola, whereas the alopecia of the second patient, the negro, was coincident with the discoloration left by a papular eruption, which occurs several weeks later than the roseola. The fall of hair in both these cases occurred within the time usually set for it, that is, between the third and the fifteenth month.

The differential diagnosis of these cases of typical syphilitic alopecia is interesting. As has been mentioned, this symptom is almost pathognomonic of syphilis. A spotted alopecia, simulating this may be produced by pyogenic infection of the scalp, but in such cases either the affected area will be reddened in its entirety, or there will be a red spot in the center of the thinned out patch, or even a scar as a symptom of the foregoing pyogenesis. The scalp and the thinned out areas are usually free of pyogenesis when the alopecia is observed. That is to say, the alopecia is a consequence and a later development of a forerunning patchy pyogenesis, just as a syphilitic alopecia is subsequent to a focal disturbance due to spirochetes. It is principally seen in orphan asylums and other institutions for children, following an epidemic of impetigo.

Seborrhea will occasionally cause a fall of hair in one or two large patches. The patches, how-

ever, are large and few, and not scattered and numerous, and the seborrhea is well marked.

In alopecia areata the patches are usually much larger and less numerous than in syphilitic alopecia and they are sharply circumscribed and completely denuded of hair, the bald spot is dead white, and there are broken hairs at its edge if it is extending, and these hairs are "exclamation mark" shaped.



FIG. 2.

Pseudo-alopoeia areata in a woman of fifty-three years of age, who has been under my care for five years. The process has been checked, but the bald places will remain irretrievably bald.

There is yet another disease that it is well to remember in a differential diagnosis,—the pseudo-alopoeia areata of Brocq. In this there are scattered over the scalp a great number of irregularly shaped bald areas about the size of a finger print or less, separated by strands of sound hair. At first glance and at a distance the condition looks strikingly like that of syphilitic areolar alopecia, but on closely examining the bald spots themselves they will be seen to be slightly hollowed out, perfectly smooth, and with not a sign of a follicular orifice. The surface is cicatricial. Rarely an occasional hair will be left in the midst of such an area, but the patch remains definitely and irretrievably bald, as the hair follicles themselves are destroyed. This alopecia of Brocq comes on slowly, and assumes its spotted character after long years, it is absolutely atrophic, and the patches remain irreparably bald. It, therefore, is essentially different from syphilitic alopecia that comes on suddenly, and lasts only a few weeks, and in which the hair follicles can be seen to be intact.

In the foregoing it will be appreciated that, although typical areolar syphilitic alopecia is as simple as a symptom well can be, it is also almost as pathognomonic as a symptom can be, and that it may occur in a class of cases that may easily escape correct diagnosis, and therefore may remain untreated, with consequent increased danger of grave visceral syphilis supervening in later years.

NOTES OF A CONFERENCE ON THE
MEDICAL AND SOCIAL ASPECTS OF
SYPHILIS OF THE NERVOUS SYSTEM,
HELD AT THE PSYCHOPATHIC HOSPITAL,
MAY 27, 1915.

(Continued from page 573.)

EXAMINATION AND PROPHYLAXIS FOR SYPHILITIC PATIENTS AND THEIR FAMILIES: METHODS OF INVESTIGATION AT THE PSYCHOPATHIC HOSPITAL, BOSTON, MASSACHUSETTS, 1915.

BY HELEN M. WRIGHT, BOSTON,
Social Worker.

APPENDIX A.

PSYCHOPATHIC HOSPITAL
OUT-PATIENT DEPARTMENT

OUTLINE FOR HISTORY OF A PATIENT ADMITTED TO THE OUT-PATIENT DEPARTMENT.

Name of patient

Address

Age

Date and place of birth

Religion

Referred by

Brought by

Reason for bringing to the clinic

History given by

Family History

Father: Address, age, nativity, religion, occupation.

Mother: Same (maiden name).

Brothers and sisters: Ages, occupations, causes of death if dead. (Still-births or miscarriages).

Husband or wife: Name and birthplace, religion.

Date of marriage.

Children.

Heredity

Relationship between parents.

Condition of health, and cause of death, if dead, of:

Father

Mother

Paternal grand-parents; maternal grand-parents

Uncles and aunts.

Tbc., insanity, feeble-mindedness, epilepsy or cancer in family.

Social History

Time in U. S., in state.

Wage earners in family, and wages.

Character of home and neighborhood.

Patient sleeps with whom? Windows open?

Past History

Full term? Normal delivery?

Character of pregnancy.

Birth weight.

Feeding: Breast or bottle.

Age of sitting up

" " first tooth.

" " walking.

" " talking.

" " going to school.

Length of time in school.

School record.

Occupations (age, length of employment, wages).

Illness. Age of puberty.

Remarks

(To include as much information as possible about the patient's character, habits and conduct, home training and opportunities for development, his associates and recreations.)

PSYCHOPATHIC HOSPITAL.

BOSTON STATE HOSPITAL
SOCIAL SERVICE.

SUGGESTION OF AN OUTLINE OF HISTORY TO BE SENT WITH PATIENT TO PSYCHOPATHIC HOSPITAL.

Date.

Name of patient.

Address.

Age.

Date and place of birth.

Religion

Referred by

Brought to hospital by

Reason for bringing

History given by

Family History

Father: Address, age and date of birth, nativity, religion, time in U. S., in state, in city, occupation, character and intelligence.

Mother: Same.

Brothers and sisters (ages, occupations, causes of death, if dead).

Still-births or miscarriages (order of occurrence).

Husband or wife: Name, age and date of birth, nativity, religion, time in U. S., in state, in city, occupation, character and intelligence.

Date and place of marriage.

Children: Ages.

Home and Neighborhood

Character of locality (factory, business, tenement, suburban, etc.)

Character of street State as far as possible in

" " building

specific terms

" " home

(1) furnishings

(2) neatness and cleanliness

Income and savings.

Expenses: Rent, insurance, benefit societies, etc.

Attitude of family toward their income.

Attitude of family toward patient.

Attitude of patient toward family.

Heredity

Relationship between parents

Condition of health and cause of death of:

Father

Mother

Paternal grand-parents

Maternal grand-parents

Uncles and aunts

Tbc., insanity, f. m., epilepsy or cancer in the family.

Developmental History

Full term? Normal delivery?

Prenatal history.

Work of mother during pregnancy.

Diseases of " " "

Injuries to " " "

Mental strain of mother during pregnancy.

Birth weight.

Feeding: Breast or bottle—when weaned.

Age of sitting up.
 " " first tooth.
 " " creeping.
 " " walking.
 " " talking.
 " " puberty.

Illnesses
 General.
 Convulsions.
 Injuries.
 Hospital care.

Education

Age of going to school.
 School record.
 Grade and age of leaving school.
 Special training (industrial, commercial, musical, etc.).

Reading.

Work

Began work when.
 Hours of work (overtime, speed).
 Positions held: When and how long.

Highest wage reached.

Opportunities for advancement.

Character of associates.

Personal Hygiene

Character of bedroom.

Habits of sleeping (alone or with whom).

" " eating.

Recreation

Opportunities.

Tastes.

Companions.

Additional Information

To include as much information as possible about the patient's character, disposition, habits, conduct, home training and opportunities for development.)

APPENDIX B.**HISTORY FOR INDIVIDUALS IN FAMILY IN WHICH EVIDENCE OF SYPHILIS HAS BEEN FOUND.**

Date

Name

Date of birth

Referred by:

Brought by:

Developmental history:

Address

Cross reference

Full terms?

Prenatal history:

Diseases of father and mother previous to pregnancy.
 Work of mother during pregnancy.
 Diseases of " "
 Injuries to " "
 Mental strain of mother during pregnancy.

Birth weight.

Feeding: Breast or bottle.

Age of sitting up.
 " " first tooth.
 " " creeping.
 " " walking.
 " " talking.
 " " puberty.

Illnesses:

General (beginning in infancy, give chronologically).
 Convulsions.
 Injuries (age).
 Hospital care.

Education:

Age of going to school.
 School record.
 Grade and age of leaving school.
 Special training (industrial, commercial, musical, etc.).
 Reading.

Work

Began work when.
 Hours of work (overtime, speed).
 Positions held: When and how long, wages.

Highest wage reached.

Opportunities for advancement.

Character of associates.

Personal Hygiene

Character of bedroom.

Habits of sleeping (alone or with whom; hours).

" " eating.

Recreation

Opportunities.

Tastes.

Companions.

Traits of Character

Temperament.

Talents.

Defects.

Delinquencies.

Remarks:**APPENDIX C.****CARDS USED IN CATALOGUING FAMILIES OF SYPHILITIC PATIENTS.**
STYLE I.—FIRST CARDS.

NAME	AGE	O. P. D. NO.
DATE		FILE NO.
WASSERMANN: SERUM FL.		
RESIDENCE	AGE	DATE REPORTED
MOTHER		SERUM
FATHER		FLUID
SIBLINGS: 1		CASE NO.
2		
3		
4		
5		
6		
PERSON RESPONSIBLE		

For single patient.

STYLE 2.

NAME DATE	AGE	DATE REPORTED	SERUM	FLUID	O. P. D. NO. FILE NO. WASSERMANN: SERUM FL.
RESIDENCE					
SPOUSE					
CHILDREN: 1					
2					
3					
4					
5					
6					
7					
PERSON RESPONSIBLE					

For married patient.

SECOND CARD.

NAME	O. P. D. NO.
TREATMENT RECOMMENDED	
DETAIL OF WORK:	
DIAGNOSIS:	DISPOSITION:

Attached to First Card.

APPENDIX D.

SYPHILIS.

II.

PROPHYLAXIS FOR FAMILIES OF SYPHILITIC PATIENTS
AND TREATMENT OF SYPHILITIC PATIENTS.

Method of keeping card catalogue.

- I. All laboratory reports on Wassermann tests shall be sent to Social Service as soon as the stenographers have entered the reports on the proper

records. When desired information is taken from the reports of the Wassermann tests the worker shall sign her initials in the lower right hand corner and return the reports to the file basket on the out-patient department desk.

- II. The name of every patient having a doubtful or positive Wassermann report shall be put on its appropriate card, e.g.:
- The name of every single person whose parent has not been to house or out-patient department previously.
 - Every unmarried mother, under 18 years, with children, shall be put on the following type of card.

NAME	AGE	O. P. D. No.		
DATE		FILE NO.		
WASSERMANN: SERUM FL.				
RESIDENCE				
MOTHER	AGE	DATE REPORTED	SERUM	FLUID
FATHER				
SIBLINGS: 1				
2				
3				
4				
5				
6				
PERSON RESPONSIBLE				

NOTE.—By siblings is meant brothers and sisters in their relation to the patient. They should be recorded in order of birth, the oldest first. Still-births and miscarriages should be noted.

2. a. Single person, under 18 years, living with parents or with younger brothers and sisters.
- b. Every married person with or without children.
- c. Every unmarried mother, over 18 years, with children shall be put on the following type of card:

NAME	AGE	O. P. D. No.		
DATE		FILE NO.		
WASSERMANN: SERUM FL.				
RESIDENCE				
SPOUSE	AGE	DATE REPORTED	SERUM	FLUID
CHILDREN: 1				
2				
3				
4				
5				
6				
7				
PERSON RESPONSIBLE				

NOTE.—Children should be recorded in order of birth, the oldest first. Patient should be indicated in numerical order with brothers and sisters. Miscarriages and still-births should be noted.

3. A card giving detail of work shall accompany both of the two types of cards shown above.

- III. A letter shall be sent to the parent, if patient is single, or to the spouse if patient is married, asking him or her to come to the hospital for advice from physician in charge of work on syphilis, and suggesting that physicians would like to see other members of the family at the same time. (It should be definitely determined before writing, if possible, whether or not there are "other" members of the family.) This ought to be accompanied by referring to the Confidential Exchange slips.
 - IV. Every case of a primary infection, in which the family's health has not been involved, should be reported to Social Service by the examining physician in charge, so the routine letter shall not be sent to the family.
 - V. The out-patient department daily sheet should be watched for names of those reporting in response to the letters sent.
 - VI. After one week, if no response has come from the first letter, a second one may be sent.
 - VII. Visits shall be made at the home of every patient—
 - a. where no response has been made to the two letters;
 - b. where the letter is returned unclaimed;
 - c. where there is special influence or persuasion needed.
 - VIII. Every letter should be written with careful thought and no information given unless authorized by the physician. All information as to the nature of the disease, etc., should be given to the family by the physician. Some examples of letters are attached (No. 1, 2, 3).
 - IX. It is sometimes helpful to write to the mother and father jointly when a request is being made for children to be brought to the out-

patient department. Each parent then has a share in the responsibility.

X. A history of each member of the family reporting is taken in the out-patient department. (See attached form.)

FOLLOW-UP SYSTEM

If a patient reports to the Out-Patient Department only to have his blood taken for the Wassermann test, and the question of his return cannot be determined until the report of the Wassermann reaction returns, the "Memorandum for Return" slip is marked "? of Wa. R." (that is, question of Wassermann reaction). The follow-up worker gives a copy of this slip to the syphilis worker, and the latter returns it as soon as she learns the result of the Wassermann test, marking on it the date when the patient is to return or the fact that the patient is discharged from the Out-Patient Department. If the patient is to return, the follow-up worker makes out a follow-up card for him and notifies the syphilis worker if he does not come on the given date. If he is not to return, the "Memorandum for Return" slip is destroyed, and no follow-up card is made out.

Syphilis patients who are given a definite date to return at the time of their visit to the Out-Patient Department are entered on the follow-up list, and if they do not report at the given time the syphilis worker is notified.

III.

ESTIMATE OF THE COST OF SOCIAL WORK IN CONNECTION WITH EXAMINATION AND TREATMENT OF OTHER MEMBERS OF FAMILIES OF SYPHILITIC PATIENTS THROUGHOUT THE STATE, BASED UPON 147 CASES DEALT WITH IN EIGHT MONTHS AT THE PSYCHOPATHIC HOSPITAL.*

BY MARY C. JARRETT, BOSTON,

Chief of Social Service Department, Psychopathic Hospital, Boston.

IN the first eight months of prophylactic work for the families of syphilitic patients at the Psychopathic Hospital, the time given by the Social Service was equal approximately to one-half of the time of a social worker. The families of 147 patients were dealt with, 145 persons were brought to the Out-Patient Department for examination, representing 72 families among the whole number of families approached. In 25 cases all the members of the family were examined. For 35 persons treatment was given at the Psychopathic Hospital, and for 17 others, treatment was recommended elsewhere. On the basis of this work it may be estimated that one social worker on full time could deal in one year, or eleven months (allowance being made for the vacation period), with the families of 400 patients in the way indicated above, and described more fully by Miss Wright, social worker, in her paper on "Methods of Investigation." This estimate does not, of course, allow for social treatment of the cases, beyond securing the medical examination and blood test, getting a minimum social history, and giving advice about obtaining prescribed treatment.

If in special cases further services were required from the social worker, the time required for such work would have to be estimated according to the time needed for regular social case work.¹

It is possible that if the social worker undertook a smaller number of families than 400, by more persistent effort she might succeed in securing the examination of a larger number of persons. However, it must be expected that many of the families approached will not respond. In most cases there are difficulties in the way of the examination at the hospital to be overcome, such as: distance from the hospital, the inconvenience of staying away from work, absence from home, and most difficult of all, the objection of a seemingly healthy person to undergoing an examination. This obstacle is increased

* Being S. B. I. Contribution whole number 124 (1915.27) *Bibliographical Note*.—The previous contribution was No. 123 (1915.26) by Helen M. Wright, entitled "Examination and Prophylaxis for Syphilitic Patients and Their Families; Methods of Investigation at the Psychopathic Hospital, Boston, Massachusetts, 1915." *BOSTON MEDICAL AND SURGICAL JOURNAL*, clxxii, No. 24, 1915, p. 569.

¹ See "Further Notes on the Economic Side of Psychopathic Social Service" by Mary C. Jarrett, read at the Second Annual Conference of the Medical and Social Work of the Psychopathic Hospital, Boston, June 26, 1914. *BOSTON MEDICAL AND SURGICAL JOURNAL*, clxxi, No. 23, Dec. 3, 1914.

because it seems necessary in the present state of public sentiment in regard to syphilis that the social worker shall refrain from explaining the special reason for the examination and use only general expressions as to its desirability.

If 400 cases be taken as the number to be dealt with by one social worker in a year, and if the percentage of syphilitic patients among the insane, who are admitted to the state hospitals be taken as 20%, a need of half the time of one social worker is indicated for every 1000 admissions. At the Psychopathic Hospital, the percentage of syphilites is estimated to be 15%, so that during the year October 1, 1913, to September 30, 1914, when the total number of new patients was 2666 (1853 first admissions in the House and 813 new patients in the Out-Patient Department) there must have been approximately 400 syphilitic patients, indicating that the time of one social worker should have been given to this form of prophylactic work.

The admissions for the same year to the other state hospitals from the community were 2783. As 21 1-3% of admissions last year were readmissions, the number of cases for this action would be somewhat reduced after the system had been installed. In the year 1913 to 1914, it may be estimated that one social worker on full time and another on half time would have been required to secure examination and treatment for the families of all syphilitic patients admitted to the state insane hospitals, so far as the persons approached could be induced to respond; and one additional social worker was needed for the same work at the Psychopathic Hospital.

IV.

A FEW ECONOMIC FACTS OF THE SYPHILIS PROBLEM, FROM THE PSYCHIATRIC SIDE.*

BY DONALD GREGG, M.D., BOSTON,

Assistant Physician, Psychopathic Hospital, Out-Patient Department.

DURING the calendar year 1914, 3039 new cases entered the Psychopathic Hospital,—1926 in the House, and 1113 in the Out-Patient Department.

Three thousand two hundred and thirteen Wassermann examinations of blood, or spinal fluid, were made during this year. Of this number, 780 were positive, or doubtful. These reactions appeared in 507 cases. Thus, in round numbers, among 3000 patients, 500, or 16.6% showed positive, or doubtful reactions for syphilis.

Further study of these 500 cases showed 208 of them to be suffering from general paresis.

* Being S. B. I. Contribution whole number 125 (1915.28). *Bibliographical Note*.—The previous contribution by Mary C. Jarrett, entitled "Estimate of the Cost of Social Work in Connection with Examination and Treatment of Other Members of Families of Syphilitic Patients Throughout the State, Based Upon 147 Cases Dealt with in Eight Months at the Psychopathic Hospital," *BOSTON MEDICAL AND SURGICAL JOURNAL*, clxxiii, No. 25, 1915, p. 921.

tabo-paresis, feeble-mindedness, epilepsy, or some other condition, presumably due to a syphilitic infection,—conditions that almost always need institutional care.

In other words, of the 3000 cases admitted to the House and the Out-patient Department, 500, or 16%, showed positive, or doubtful reactions for syphilis, and of these 500 cases, 200 were suffering from conditions due to a syphilitic infection and needing institutional care. That is, 200 out of 3000, or 6% of the total admissions were candidates for institutional care because of the results of syphilitic infection.

In the state institutions of Massachusetts, there were over 15,000 patients in 1913; 8.32% or over 1100 of these cases, were diagnosed as general paresis. Thus, this estimate of 6% for the Psychopathic Hospital is probably below, rather than the true status of affairs. But assuming that 6% is a fair figure, this means that in the state of Massachusetts, some 900 individuals are in state institutions, and in part or wholly, state charges, as a result of syphilitic infection.

It costs some \$223.60 per annum to support an inmate of a state institution. At this rate, over \$20,000 is spent in one year to care for individuals who are suffering mentally as the result of syphilitic infection.

A dose of salvarsan now costs \$5.00. It is estimated that ten doses might have some beneficial results in treatment of cases of this sort. This means \$45,000 for salvarsan alone if treatment is undertaken for these cases.

If one automobile kills, or totally incapacitates a man, a lawyer tells me that \$5000 is an average amount paid for damages. At that rate, \$4,500,000 is the damage that the spirochete has done to the 900 patients in the state institutions of Massachusetts.

As you know, syphilis is not a disease that affects an individual alone. It is visited upon his children. Complete records of the family histories of these cases were not to be had. Among 70 cases, however, 133 deaths in the families were recorded, 52 miscarriages and 8 still-births—a total of 193. If these children's deaths were due to syphilis, and if this ratio holds throughout all the cases, 2490 children born and unborn, related to the patients in state institutions in 1914, have died from syphilis. And yet it is known that women having syphilis of the nervous system, do not miscarry nearly as frequently as do other syphilitics. Consequently, no one has any knowledge of how many infants and children die each year in Massachusetts as a result of syphilis.

Lest it be thought that syphilis is a disease of the poor and socially inefficient, the following list of occupations is given which were noted among the occupations of these patients:—

1 Architect	1 Banker
1 Accountant	1 Insurance Agent
1 Store-keeper	1 Stenographer

2 Jewellers	1 Solicitor
1 Journalist	1 Policeman
1 Ship Chandler	1 Wool Broker
1 Photographer	1 Clergyman
1 Blue Printer	1 School Manager
1 Farmer	1 Bank Clerk
1 School Teacher	1 Superintendent of Electrical Co.
1 Milliner	1 Physician
1 Traveling Salesmen	1 Actor

Lest it be forgotten that the community may be endangered by the inefficiency of these individuals—inefficiency that may develop without warning—the following list is given of some of the potentially dangerous occupations of these patients:—

3 Engineers	1 Boat Captain
2 Druggists	1 Railroad Signal Man
3 Electricians	1 Car Inspector
2 Conductors	1 Motorman
1 Janitor	1 Lighthouse Man

And lest we forget how close home this disease may be brought to all of us, this list of occupations of these patients is given, although it is to be remembered that only under certain conditions and in certain stages of the disease, is it strongly contagious:—

7 Waiters	1 Nurse Maid
1 Trained Nurse	1 Fruit Peddler
5 Barbers	1 Milkman
3 Caterers	1 Grocer
2 Cooks	

These are some of the economic facts regarding this disease as seen at a hospital for mental diseases.

In New York City last year, during a period of 14 weeks, syphilis stood first in the list of infectious and contagious diseases, with 28% of the total number reported; tuberculosis was next, with 21%, and afterward, diphtheria, measles and scarlet fever, in the order named.

We all know what is being done to eradicate tuberculosis, which mains the body of the individual; but syphilis, which mains both body and mind, and is visited upon the generation yet unborn, is scarcely mentioned in the public press because many of the cases are venereal in origin.

(To be continued.)

Clinical Department.

FRACTURE OF THE TRANSVERSE PROCESSES OF THE FIFTH LUMBAR VERTEBRA.

By LLOYD T. BROWN, M.D., BOSTON,
AND
W. J. DODD, M.D., BOSTON.

A GREAT deal of attention lately has been given to the lumbar and lumbosacral spine as a cause of backache. In any large series of x-rays, such as one sees at the Massachusetts General Hospi-

tal, one occasionally finds some x-rays that show breaks in the continuity of the transverse processes of the lumbar vertebrae. Six cases of this kind were reported by Rhyns, under the title of "Pseudo Fractures of the Transverse Processes." He believes that they are due to a non union of the epiphysis in this region and are not true fractures, and bases his opinion largely on the fact that in his cases there were no histories of any injury severe enough to cause a fracture. The following case is reported with x-rays to show that this condition may occur without violent trauma and may be a true fracture.

On August 30, 1913, the patient, age 42, a medical man, gave the following history: When in college he had to stop playing football because of backaches coming on after getting tired. If he did not get overtired he had no trouble. For the past twelve years he had been treated for tabes, the diagnosis being made by some of the best medical men and neurologists. The chief symptoms were backache and leg pains associated with absent knee jerks, Argyll Robertson pupils and an increasing ataxic gait. This condition and the distress with it gradually increased until the attempts to control the pain with morphine caused the still more distressing troubles of a morphia habit. The patient, seven months ago, went through a course of treatment to stop the morphia. This was successful but left him in a very much relaxed and weakened condition. He then went to an out-of-door physical culture establishment, where in about three weeks he was brought to a condition of being able to walk six to eight miles or more a day. Part of the training was riding horseback. One day, being extremely tired and relaxed, he received, while riding, a sudden jolt which caused a moderate amount of pain in his back. A few days after this ride the masseur told him that the lower back was black and blue. It was also somewhat sensitive to pressure. For ten days following the ride, the pain in his back and legs, first one and then the other, depending on certain motions being made, increased so that he had to stop the training. When the examination was made two weeks after the injury, it showed a large tall man, of the broad heavy type, of muscular but somewhat flabby build. He had a distinctly ataxic gait. He had had a great many Wassermann reactions done, none of which had ever been positive, not even from a lumbar puncture. The standing attitude was one in which there was a very marked increase of the normal lumbar curve, associated with rounded shoulders and a forward position of the head. There was considerable limitation of the lateral spinal motions—especially in the low lumbar region. Flexion of the spine showed that the lumbar curve could be made flat but not rounded. There were two definite points of tenderness just inside the posterior superior spines, at the place where the transverse processes of the fifth lumbar vertebra should be. An x-ray, taken by Dr. Walter Dodd, two days after the above physical examination (see Fig. 1) showed large, broad transverse processes of the fifth lumbar vertebra; a sacrum which was placed low between the crests of the ilia. This meant, of course, that, if there should be much hyperextension of the spine on the sacrum, these transverse processes would be more liable to impinge either on the ilia or on the wings of the



FIG. 1.—Note the fracture of the transverse processes of the fifth lumbar vertebra: That the lumbar vertebrae are large and are broad compared to their height. That the transverse processes are also of the large broad type. That the sacrum is placed low between the ilia.

sacrum. These transverse processes, in the x-ray, showed a definite break of their continuity. The edges of the break were serrated and closely resembled a fracture. A diagnosis was made and confirmed by Dr. Dodd of probable fracture of the transverse processes of the fifth lumbar vertebra. The treatment was planned to support the lower lumbar region and to correct the markedly increased lumbar curve with the hope that by so doing, the strain on the fifth lumbar transverse processes would be relieved. A belt with a pad to bridge the lumbar curve behind and a pad to hold up the abdomen in front was applied. In three days there was a marked lessening of the pain down the legs and the patient also thought the ataxia was less marked. Fig. 2 shows a second x-ray taken three and one-half



FIG. 2.—Taken three and one-half months later, shows a callus formation at the sites of fracture.

months later. This shows a thickening of the edges of the bone around the break in continuity, which

closely resembled callous formation. With this change in the x-ray picture has come a relief of the symptoms of which the man complained, namely relief from the pain in the back and legs and what is still more interesting, a marked decrease of the ataxic gait.

Whether there is any connection between the ataxia and the possible pressure which may have been produced by the anatomy of the spine in the lumbo-sacral region, combined with the faulty posture, is a matter of conjecture. We report this case, as it may interest others as it has interested us.



FIG. 3.—Taken sixteen months after Fig. 1; shows the callus somewhat smaller than in Fig. 2.

We wish to thank Dr. Goldthwait for permission to report this case.

A CASE OF DERMATITIS MEDICAMENTOSA.

BY WILLIAM S. WALSH, M.D., PROVIDENCE, R. I.

THERE is scarcely a drug in the pharmacopeia that may not produce a skin eruption when such a drug is administered to a susceptible person. Moreover the eruption produced may be macular, papular, vesicular, pustular, bullous, ulcerative, gangrenous, diffusely erythematous, or urticarial, and may simulate certain definite diseases of the skin, or conform to no well recognized type. The same drug may produce a variety of skin disorders, so that, with the possible exceptions of silver, arsenic and the bromides, they present, clinically, nothing specific in their various manifestations.

Generally, drug eruptions occur most commonly in persons whose vitality is low, or who are nervous subjects. Constitutional or organic disease, as well as idiosyncrasy, are predisposing factors. The eruptions are usually bilateral, appear mostly on the exposed surface of the

body, are not accompanied by fever as a rule, generally do not itch, are not painful, save in severe inflammatory types, appear suddenly, disappear rapidly on cessation of the drug, are very red in color, and have atypical courses.

It should be the practice of every physician to inquire of his dermatological patients whether or not they have been taking medicine. In this way many an embarrassing situation will be escaped. Only lately I saw a young child, who, on cursory examination, seemed to be undoubtedly suffering from scarlet fever. He was profusely covered by a scarlatiniform rash, had a temperature of 102, a rapid pulse, enlarged cervical glands, etc. When the facts were considered, namely, that generalized, scarlatiniform drug eruptions are often accompanied by systemic disturbances and a rise in temperature, that the child was tubercular and had been receiving atropine for a corneal ulcer, the original diagnosis of scarlet fever was changed to one of *beta*-idomma eruption.

In this connection I wish to describe briefly a case of mercury eruption following a short course of vaginal douches.

The patient was a strong robust girl, aged 21, single, white, who presented herself for treatment on April 8, 1915, being over eight months pregnant and having a very profuse vaginal discharge due to the gonococcus. She had a large condylomatous mass on the left vaginal wall which refused to respond to therapeutic measures until after delivery. She was placed under treatment with daily douches of bi-chloride of mercury, two quarts of a 1 in 5000 solution being employed. This treatment was kept up until May 25th, on which day she was delivered of a normal male child. The douches were discontinued until July 19th at which date they were again instituted. On July 24th the patient developed redness on the sides of the nose, her temperature rising to 103.8°. On the following day a diagnosis of erysipelas was made. On July 27th she complained of a bad taste in the mouth, of salivation, and sore teeth, small pieces of which were chipped off. The douches were discontinued. On July 28th her temperature was 99, on which day she developed a generalized eruption. The eruption was papular, slightly scaly, intensely inflammatory, did not itch, and was not accompanied by any marked subjective sensations. A few tiny vesicles surmounted some of the papules. The lesions varied in size from a small pea to a dime. A Wassermann reaction taken sometime previously was negative, so there was no doubt but that the eruption was due to mercurial poisoning. A few days after the cessation of the douches it disappeared. Unfortunately the patient soon after left for other parts, so her reaction to mercurial preparation by mouth could not be tested.

We know that mercury may cause erythematous, furuncular, herpetic, papular, purpuric, pustular, scarlatiniform, ulcerative and urticarial lesions, but the rarity of eruptions from the absorption of mercury, and especially the production of an eruption by way of the vagina, prompt me to offer this case as a contribution to the meagre literature on the subject.

A CHEMICAL AID IN SECURING THE SPIROCHETA PALLIDA FROM SYPHILITIC LESIONS.

BY HENRY D. LLOYD, M.D., BOSTON.

[From the South Medical Department, Massachusetts General Hospital.]

SOME four months ago in a short monograph* we came across the statement that alcohol applied to any ulcerated specific lesion, either primary or secondary, increased greatly the number of recoveries of the spirocheta pallida. Since that time our method in the South Medical Department at the Massachusetts General Hospital has been the following:—

First carefully to clean the lesion, using water or salt solution, and then to wash it with 95% alcohol. This is only slightly painful. Then by lateral pressure we almost always secure a most abundant supply of serum, presumably serum from the deeper layers; for since we have been applying alcohol to the primary lesion or the ulcerated secondary lesion our percentage of recoveries of the spirocheta pallida has averaged at least 95%. It is impossible to say what the percentage of recoveries was before the use of alcohol, but we estimate it at least 20 or 25% less.

* The Salvarsan Treatment of Syphilis in Private Practice. By George Stopford-Taylor and Robert Wm. Mackenna.

Harvard Medical School.

LEGAL MEDICINE.

I.

It is obviously impossible to give in a few lectures all that a Harvard graduate in medicine should know about legal medicine. Thus the practical and immediate object of these lectures is to present some of the situations which are likely to arise in the practice of medicine and to discuss some of the principles in the relations of the law to medicine.

Legal medicine is not a specialty in medicine, but rather medical science in all its branches viewed from a particular angle. The law's requirements of practitioners of medicine may be divided into:

- (a) Service which medical science must give to the law, of which the following are examples:
 - (1) The determination of the sex of a malformed infant.
 - (2) The determination of the sanity or insanity of an individual.
 - (3) The discharge of the duties of an ordinary medical witness.
- (b) Proper conduct as physicians in the case of patients and the maintenance of public health, of which the following are examples:
 - (1) Compliance with registration laws in regard to birth, death, and reportable diseases.

* Lectures by Dr. George B. Magrath at the Harvard Medical School, Nov. 26 and Dec. 3, 1915.

- (2) Avoidance of unlawful acts, malpractice, etc.
- (3) All conduct in connection with occupational diseases and the hazards of labor.

The Registry Laws—The Death Certificate.

- (a) The importance of the death certificate is very great in that it forms one of the essential sources of information for vital statistics. Uniform procedure in obtaining death certificates protects the community against all manner of crime and irregularity. The statute law requires the physician in attendance on the final illness to state the cause of death.
- (b) The cause of death not always correctly given. Doctors should adhere to the standard form recommended by the bureau of the census with the list of accepted causes of death. A clear distinction should be drawn between primary and secondary causes of death: e.g. broncho-pneumonia might be immediate cause of death but antecedent measles would be the correct primary cause of death.
- (c) A physician should not take the full responsibility of signing the death certificate under any of the following conditions:

- (1) If the attending physician has not seen the patient within two weeks before death. Board of Health regulation provides that he may sign the certificate if he has seen the patient within two weeks before death; otherwise he should call up the Board of Health and obtain special authorization to sign the certificate.

- (2) If the fact of death be in any doubt. The undertakers being in no way controlled as regards time of embalming, it is essential that bodies be withheld an adequate time to prevent any mistakes on the fact of death.

- The signs of death are: (a) Cardiac and respiratory failure. (b) Loss of heat and rigor mortis. Here temperature of the room must be considered. Rigor very slight in aged or after wasting fevers, etc. (c) Post-mortem lividity. Distinguish between normal lilac color and the bright red of CO (gas or charcoal) poisoning.

- (3) If there is any contributory factor of accident, trade disease or other abnormality. For example, death from hypostatic pneumonia following fracture of the hip from a fall should not be reported without notifying the medical examiner. Trade diseases under the Workingmen's Compensation Act are especially important.
- (4) If the death is due to acute alcoholism or delirium tremens.
- (5) If the death occurs under medical observation of so short a duration that the etiology is in question, the medical examiner should be notified.

- (6) If sudden death occurs in the presence of several competent witnesses, in a patient not under previous medical observation, the medical examiner should be notified or the undertaker should be referred to him for the death certificate. The body may be moved before the arrival of the medical examiner, if the character and number of the witnesses is sufficient.
- (7) In persons found dead, or where no adequate number of persons witnessed the death, the medical examiner must be notified. The body should not be disturbed in its position, if any such change is likely to destroy evidence in regard to the manner of death.
- (8) If death occurs following the administration of anesthetics in operations which are not long or exhausting, it is the province of the medical examiner to investigate the exact cause of the death.
- (9) If the death be due obviously or presumably to any form of *injury*.

Dying Declarations.

These statements are of considerable legal value as testimony and as they are also subject to the physician's influence they form an important part of medico-legal study. It is important to secure a dying declaration whenever the testimony thus given has an important legal bearing on the fixing of responsibility for the expected death. That a patient in a grave condition could be worried by persistent efforts to wring a dying declaration from him, to so great an extent as eventually to cause his death, is well recognized by the law. The attending physician therefore is given the authority to limit the extent of questioning, etc., to which the patient shall be subjected. In order to be valuable legal testimony the dying declaration must contain statement by the patient to the express effect he believes the statement to be his dying declaration. The attendant physician is responsible for the diagnosis of the condition of patient who makes a dying declaration to him.

The Office of the Medical Examiner.

Since earliest times under English law there has existed the office of coroner, which was occupied by men who investigated the causes and circumstances of deaths primarily to ensure that the proper portions of the deceased's estate became the property of the Crown. Also, it is mentioned, the coroner had direct authority over the disposal of "whales, sturgeon and other royal fishes" and was wreck-master in general throughout the realm.

At present in most states in this country the coroner system is in force. Under this plan the coroner is a peculiar mixture of investigator, magistrate and doctor, with the authority (but not always the ability) to establish scientifically the cause of death, to investigate sufficiently the manner and circumstances of death, and to take adequate measures for fixing the legal responsibility. The ordinary procedure in cases of death due to other than natural causes is for the coroner to take charge of the body, hold a view, make inquiry as to the manner and circumstances of death. If he is satisfied here,

he may pronounce the case as one not needing further investigation. Or he may impanel a jury, submit the facts to them and charge the jury to declare whether the death was due to **murder** or not and to find, if possible, the murderer.

Since 1875 Massachusetts has made the distinct office of medical examiner, transferring the magisterial power to the criminal and civil courts. All deaths due to causes other than "natural" disease, are now subject to the investigation of the medical examiner. There is no law that requires the physician to summon the medical examiner, but there is a law requiring that no burial permit be given in case the death was due to violence, accident, occupational hazard, or causes other than natural disease, save on the certificate of the medical examiner.

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II.

1. **The Definition of Sudden Death.** It is important that the practitioner know what legally constitutes sudden death, for in such cases his responsibility may become medico-legal. A sudden death is defined as a death of a person not disabled by recognized disabling disease. Sudden death does not mean unexpected death. Sudden thrombosis followed by death in a case of typhoid would not be considered medico-legally as sudden death.

2. **Rapid Deaths are most commonly due to:**

- (a) **Heart disease.** Chronic valvular disease, myocarditis, or coronary sclerosis can all exist without external symptoms or signs previous to rapid failure and death. These cases always appear in increased numbers during the first cold weather, when slightly increased early morning exertion, running against the wind, etc., brings on rapid and fatal decompensation.
- (b) **Status lymphaticus.** This condition, recognized usually only anatomically post-mortem, is seen in connection with sudden death in young individuals upon administration of sera or primary ether. It is a mistake to assume that all traces of thymus are gone by maturity, for enlargements are found at various ages up to middle life even.
- (c) **Thrombosis and embolism.** Cerebral embolism is very rare. Pulmonary embolism is always consequent upon thrombosis on the systemic side of the venous circulation. The usual signs are cyanosis, pain in chest and respiratory distress, and death ensues in a few minutes to half an hour.
- (d) **Acute hemorrhagic pancreatitis.** Always associated with severe abdominal pain, and though death is rapid it is not instantaneous.
- (e) Apparently many physicians are unaware that the chronic use of distilled liquors may give very rapid death. For some reason this death, due to "wet brain", is very swift, and is usually preceded by syncope.

- (f) Cerebral hemorrhage is not properly in the list of the causes of rapid death, as ordinarily death does not take place before two hours are past.

Medico-Legal Aspects of Abortion.

- A. The subject of abortion is important to the practitioner in that its legal aspects concern (1) his rights as an obstetrician and gynecologist, and (2) his conduct in case he be hurriedly summoned to attend a patient with symptoms of miscarriage threatened or completed.
- B. The legal definition of abortion is "any interruption of the normal period of gestation of ten weeks," and no distinction is made between abortion, miscarriage and prematurity. Under such a definition are grouped two classes (a) natural abortion, and (b) induced abortion, and again under (b) (1) therapeutic induced abortion, and (2) criminal abortion. Under (a) for example would fall the abortions due to placental disease, strangulation of the cord, etc., and other "innocent" abortions.
- C. Induced abortion is due to external agents, either medication or instrumentation. The important distinction is between such abortions as could be justified as therapeutic measures and those which are directed against the life of the foetus.

(1) Therapeutic abortions may be indicated:

- (a) In the eighth to ninth month on account of pelvic dystocia or anomalies of foetal development. The increasing success and safety of the Caesarean qualifies the validity of such reasons.
- (b) Whenever the continuance of the mother's life is conditioned by terminating pregnancy.
- (c) Any condition in the mother which in the opinion of two or three reputable physicians necessitates the interruption of pregnancy. E.g. pernicious vomiting.

There is no law in black and white as to when abortion may be induced and when not. It is wise to consult usually the woman, always her husband and two other physicians. Three reputable physicians concurring in the opinion that a woman should have an abortion done would render the situation legally sound.

- (2) Abortions are criminal when there is intent to produce miscarriage maliciously, i.e. with malice directed against the life of the foetus.** The law says nothing of the destruction of foetal life, it is not

an infanticide law but one directed against the attempt to cause miscarriage. The mother inducing abortion on herself assumes the same legal status as does the man practising criminal abortion; the Massachusetts law provides a penalty of not less than five nor more than 20 years' imprisonment if the abortion is followed by death, otherwise a penalty of not less than one or more than seven years, or a fine of \$1000. Convictions for criminal abortion are rare among physicians, and sentences for self-induced abortions are very rare. Probably abortion is very frequent but the spreading knowledge of rudimentary asepsis has reduced the morbidity and mortality in the last 20 years.

- D. The detection of criminal abortion depends largely on finding the instrument used, or on determining the type of medication employed. Poisoning by medication is rare and hence, when mechanical means may be also ruled out, it is sometimes hard to find the cause. Instrumentation is much the more common and includes a wide variety of objects. Remember that air from syringe irrigation has been known to be fatal. The two most serious complications are retained membranes and perforation of the uterus.

The Relation of the Regular Practitioner to a Case of Abortion.

I. Transfer to hospital. If it be a public hospital, give a full account of the case to the admitting physician; if a private hospital, call in consultation, one at the least and preferably two, consultants. Hospital is the best place—for the doctor to have the patient.

II. If patient doesn't go to hospital, call in two consultants.

III. If the evidence points to induced abortion it is prudent for the physician to apprise the medical examiner.

IV. If serious complications set in, get a statement from the patient. If, without being too much of a police officer, it seems best to fix the responsibility, then notify the bureau of criminal investigation and they will take charge of the entire case.

V. In the case of the physician being called upon to dispose of the foetus, it is customary to treat as stillborn any foetus one foot long and weighing 1½ pounds. Stillborn babies require certificates for burial. Foetuses under 7½ months may be treated as surgical product. The main legal question being the viability of the foetus, it is obviously safe for physician to take complete charge of the extremely premature foetuses in all cases which are open to no question.

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Book Reviews.

Occupational Affections of the Skin. By R. PROSSER WHITE, M.D., Edin.: M.R.C.S., Lond. New York: Paul B. Hoeber. 1915.

The author of this brochure states that his own requirements prompted the compilation of the facts contained in it, and that he claims for it only a needed assistance for the English enquirer. He justly says that complete data are difficult of access, as they are very much scattered in foreign and English periodicals. The book will be, as its author intended, a help. It is not the last word on this subject, but besides the partial aid it will afford to dermatologists and general practitioners, it will serve as a help to future compilers of the data of this subject. The few illustrations are hardly worthy, either in execution or importance, of the general merits of the book.

Diseases of the Skin and the Eruptive Fevers.

By JAY FRANK SCHAMBERG, M.D., Professor of Dermatology and Infectious Eruptive Diseases in the Philadelphia Polyelinie and College for Graduates in Medicine. Third edition, revised. Octavo of 585 pages, 248 illustrations. Philadelphia and London: W. B. Saunders Company. 1915.

Schamberg's third edition has been revised to meet the more important advances in dermatology since the appearance of the last edition. He has given the prescriptions, both in the metric and Troy systems in this edition, and has inserted a chapter on the Luetin Test in Syphilis, as well as rewritten the chapter on the Therapy of Syphilis, to conform to present day beliefs. As before, the most original and interesting part of his work is his chapters on the eruptive fevers, and an important addition has been made to the discussion of the mild type of smallpox, which is so often unrecognized. There is also a brief chapter on Rocky Mountain spotted fever, together with a photograph. Most of the illustrations are excellent.

Diseases of the Arteries. By SIR CLIFFORD ALBOTT, K.C.B., M.A., M.D., F.R.C.P., F.R.S., LL.D., D.Sc., Regius Professor of Physic in the University of Cambridge, England. In two volumes. London: Macmillan and Company, Ltd. 1915.

This elaborate work, by a distinguished leader of the British medical profession, is perhaps the most extensive study of arterial diseases that has yet appeared in the English language. It has evidently been in preparation for some years,

and was delayed by the outbreak of the European War. This, however, led also to the author's return to active practice, and thereby indirectly stimulated the completion of the work and supplied new material for its augmentation.

The first volume and a small part of the second are devoted to arteriosclerosis, with the report of elaborate clinical and experimental observations on its causes, symptoms, pathology, diagnosis, prognosis and treatment. The remainder of the second volume is devoted partly to aortitis, with its sequel of aneurysm, and partly to angina pectoris, with its various etiologies and manifestations. The book is not illustrated, but has an excellent index and constitutes a valuable and authoritative contribution, representing the extensive professional experience of one of the leaders of the British profession.

Hand-book of Physiology. By W. D. HALLIBURTON, M.D., LL.D., F.R.C.P., F.R.S. Twelfth edition Philadelphia: P. Blakiston's Son and Company. 1915.

The eleventh edition of this standard textbook by the professor of physiology at King's College, London, was published in 1913. At that time considerable changes were made from the previous edition, especially in the sections on salivary secretion, urinary excretion, respiration, conduction of the heart, application of physical chemistry to physiology, vitamins and reproduction and development. In this twelfth edition, which is at the same time the twenty-fifth of Kirkes' Physiology, the older work upon which this is based, only minor alterations are made. The work is illustrated with 577 text figures, many of which are colored, and with three colored plates. It should continue to maintain its usefulness as a manual for students.

A Text-book of Chemistry and Chemical Urinalysis for Nurses. By HAROLD L. AMOSS, S.B., S.M., M.D., D.P.H. Philadelphia and New York: Lea and Febiger. 1915.

This text-book in elementary chemistry for nurses contains not only the principles of inorganic and organic chemistry, but the application of these principles to the chemistry of the body, particularly with reference to the study and analysis of the various secretions. It is perhaps questionable how much of this knowledge is a desirable or necessary part of a nurse's education, at least during her training school years; but the book presents the facts of chemistry in convenient, well ordered and readily comprehensible form and should prove useful and available in the instruction, not only of nurses, but of other preliminary students in chemistry.

The Care of the Baby. By J. P. CROZER GRIFFITH, M.D., Professor of Diseases of Children in the University of Pennsylvania. Sixth edition; thoroughly revised. Illustrated. Philadelphia and London: W. B. Saunders Company. 1915.

This, the sixth edition of this well-known work, the first edition of which appeared in 1895, maintains the high standard of its predecessors. It has been thoroughly revised, reset and reprinted. In spite of the many books dealing with this subject which have been written during the past ten years, this book continues to be one of the best, if not the best, of them all. It is full of good sense, tells the mother in plain language what she ought to know, and does not attempt to usurp the place of the physician.

The Practical Medicine Series. Under the General Editorial charge of CHARLES L. MIX, A.M., M.D. Vol. IV, Gynecology, edited by EMILIUS C. DUDLEY, A.M., M.D., and HERBERT M. STOWE, M.D., Chicago: The Year Book Publishers. 1915.

This fourth volume in the Practical Medicine Series of 1915 aims to present the progress of the preceding year in gynecology. The subjects are treated in a series of brief essays, grouped under six appropriate captions. The book is illustrated with sixteen full page plates and two-text figures. It constitutes a serviceable review for the practitioner of recent advances in gynecological practice.

Simplified Infant Feeding. With seventy-five illustrative cases. By ROGER H. DENNETT, B.S., M.D., Adjunct Professor of Diseases of Children, New York Post-Graduate Medical School; Attending Physician of the Children's Department, New York Post-Graduate Hospital; Assisting Attending Physician at the Willard Parker Hospital and the Red Cross Hospital, New York. With 14 illustrations. Philadelphia and London: J. B. Lippincott Company. 1915.

The author in his preface states that he believes in a definite method of infant feeding and does not believe in individualization in feeding. He also states that he does not believe that it is necessary or advisable for the physician to be acquainted with the "theories" of infant feeding and that it is better to tell him in detail just how to feed an infant by rule. Believing, as we do, that the author is absolutely wrong in his

premises, that it is impossible to feed babies by rule, that individualization in feeding is necessary and that the more theory the practitioner knows the better he can feed babies, we cannot, of course, approve the book as a whole.

The author's scheme of feeding is briefly somewhat as follows: Believing that 4% of fat is not easily digested by the average infant, he gives 1 1/3% or 2% of fat by simple dilution of cow's milk. He makes up the deficiency in fat with sugar. He believes, however, that sugar is the most frequent source of indigestion of any of the elements. He advises cane sugar for older infants and for those with no intestinal or gastric indigestion and malt sugar for infants which have had much intestinal trouble. Milk sugar should not be given at all. He discards the former methods of making the proteids more digestible, such as whey mixtures, the addition of lime water and cereal gruels, and says that boiling the milk is all that is necessary to make the proteids digestible, and that it has now supplanted the other methods. He believes that the proper quantity of food is best estimated by caloric standards. In order to determine the caloric needs he multiplies the weight of the baby by the caloric requirements per pound. He gives one ounce of sugar in twenty-four hours to babies weighing less than ten pounds and one and one-half ounces to those weighing more than ten pounds. After subtracting the calories given by the sugar he adds enough milk to cover the caloric needs. He divides the number of calories needed by 20 to find out the number of ounces of milk required. He then adds water to make up the required amount of food. He gives, however, a number of conditions under which the caloric requirements should be ignored. He recommends six or seven feedings in the twenty-four hours. He apparently believes in giving a raw food unless there is some special indication for boiling. We disagree to a greater or less extent with all of the author's statements and methods as given above. This is not the place, however, for a long discussion of the subject of infant feeding.

Certain portions of the book are worthy of the highest praise, however. The directions given as to the taking of histories and for physical examination are admirable. The chapters on breast feeding and the treatment of constipation are also very good. The detailed descriptions given as to methods of feeding and the preparation of the food are also admirable. His classification of the diarrheal diseases and of the disturbances of digestion is, on the whole, good, although the terminology is somewhat different from that used by the reviewer. He recognizes that these disturbances and diseases may be due either to errors in the diet or to bacteria. The treatment is, on the whole, rational, except in so far as it is modified by the author's peculiar views on infant feeding.

The illustrations are original and remarkably good.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

A NEW METHOD OF TABULATING MORBIDITY STATISTICS IN THE MEDICAL DIVISION OF THE HEALTH DEPARTMENT OF THE CITY OF BOSTON.

SINCE Sept. 1, 1915, the Boston Health Department has been using electric sorting, counting and punching machines in the compilation of morbidity statistics. Formerly all the mortality statistics published by the Health Department have been compiled by this system. Beginning this year a study was made to see if the same machines could be used to furnish the morbidity statistics. The system of records formerly in use called for many different ledgers and separate units and cabinets for holding the different cards and records, so that it was impossible to collect under one unit the different data necessary for the compilation of the statistics; and to obtain any special information concerning any particular disease entailed the work of days and sometimes weeks on the part of the

clerical force. Under the present system a separate envelope has been devised (a different color for each disease), on the face of which all the necessary data are recorded from the beginning to the end of the case. Within this envelope is held the original reporting card of the attending physician, the card of the visiting medical inspector, and the card of the visiting nurse, thus keeping all the records relating to each case together, and all the envelopes filed in one cabinet, instead of being distributed among several books and card indices as in the old system. This information is then punched on a special card, and this card carries with it a complete history of the case. A code has been made, and numbers assigned, for some of the more important facts.

Diphtheria, tuberculosis, scarlet fever, typhoid fever, measles, whooping cough, and ophthalmia neonatorum are diseases in which it is all-important to have the necessary information on each and every case, in order that effective measures may be taken for their control. During the past few months that this system has been in use, it has demonstrated to the satisfaction of the department the accuracy of the data furnished and the great saving in time and labor on the part of the clerical force. Where heretofore it was impossible to furnish quickly the necessary information regarding the health conditions or morbidity rate of any district, now it is only a question of a few minutes when this information can be furnished to those desiring the same. For example, it may be asked, "what are the health conditions of some particular ward of the city as regards tuberculosis?" By means of our punched card system and the use of the machines, information can be given as regards the number of cases in any particular ward of the city; date reported; sex; age; kind of house, whether single or several apartments, hotel, lodging house, institution, basement; sanitary condition of house; birthplace of patient; occupation; whether two or more cases in the family; number of other cases in the house; laboratory findings, whether sputum is positive or negative; whether patient is confined to hospital; if at home, whether in a separate room, and duration of illness (in case of death).

In diphtheria, information is punched as regards date reported; age; ward; school attended; whether antitoxin was administered; whether confined to hospital; occupation; sex;

milk supply used; number of other cases in the house; kind of house; laboratory findings; and date of release.

In all other diseases the same method is in use. All the facts necessary are punched on the card. These cards, fed to the machine, furnish accurately within a few minutes all information desired.

One of the great advantages of this system that has been found since it has been installed is that no case once reported to the department can be released until all the necessary facts are made a matter of record. Under the old system, when an audit of the cases was made at the end of the year, some very important data necessary for the morbidity and mortality statistics were found missing, and so much time had elapsed it was impossible to obtain the necessary information on these cases.

By the use of these machines and the card system it will be possible for this department to furnish at any time the morbidity statistics of this city, and especially to publish at the beginning of the year the annual report, which will show the activities of the department and the morbidity rate of the city either as a whole or in the different districts. Under the old system it was impossible to publish this report until several months had elapsed.



MEDICAL LEGISLATION: AN UNJUST BILL.

WITH the national congress convened at Washington, and with the session of the state legislature beginning in Boston next month, the legislative season is again at hand with possibilities, good and bad, affecting the medical profession and its work, like other classes and activities. Alertness on the part of physicians, individually and collectively, is essential to prevent, if possible, the passage of injudicious or unjust legislation and to promote the passage of desirable legislation, which, without their advocacy, might fail of enactment.

During the coming legislative season, the JOURNAL will, as in the past, undertake to comment editorially from time to time on such matters of medical legislation as seem to deserve the particular attention of the profession, aiming to present both sides of every question, to reflect expert opinion on the subject in hand and, where it seems fair to reach a positive decision,

to indicate the opinion which it believes physicians should take. In doing this it will speak without fear or favor, but will aim always to allow due weight to opposing aspects of every question.

Among the bills already filed with the clerk of the House of Representatives of the Massachusetts General Court for the coming season is the following proposed measure making it obligatory for physicians to render professional services under all circumstances when asked to do so.

"It shall be unlawful for any physician or surgeon to fail to render his professional services to any sick or injured person in need of such services, as promptly as circumstances permit, provided that he is so requested by, or in behalf of, the sick or injured person, that he is not prevented by illness, absence, professional engagements or by any other unavoidable cause, from rendering such service, and provided that the sick or injured person is at the time in the same city or town in which the physician or surgeon practices.

"Refusal or neglect by any physician or surgeon to render professional service, when so requested, to a sick or injured person then being in the city or town in which the physician or surgeon practices, shall be considered as a violation of this act unless it is affirmatively shown by the defendant that such refusal or neglect was unavoidable as above defined.

"For any such service as is required by the provisions of this act, the physician or surgeon rendering the same shall be entitled to receive and may recover reasonable compensation, and if the compensation is not paid within six months by the patient or some one in his behalf, it shall be paid by the city or town in which the service was rendered.

"Violation of this act shall be punished by a fine of not less than \$5 or more than \$100."

This bill seems not only unreasonable but unjust. It is presumably aimed at physicians who, for sufficient and obvious reasons, decline to attend cases of criminal or dubious abortion, or patients who have already been in the hands of other practitioners. When other medical aid is available, and the patient therefore will not suffer, such a course seems wholly justifiable.

Neither do we believe it just that the community should be made responsible for medical debts incurred by its irresponsible members. No reputable physician would refuse to attend any case, when no other consultant could be obtained within a reasonable time. The honorable freedom of the profession should not be restricted by such a piece of unwarrantable compulsory legislation. If physicians can be trusted

at all with the responsibility of human health and life, their ethics and humanity may be relied upon to prevent them from ever really jeopardizing or allowing a patient to suffer when other medical care cannot be obtained.



MILITARY TRAINING AND PHYSICAL DEVELOPMENT.

In a most comprehensive survey of the health of workers in the garment industries, Schereschewsky (*Public Health Bulletin*, 71) found that, while as a rule, the general health conditions of the workers was very poor, with the maximum amount of disease and defect, he was, nevertheless, able to note one exception to this rule in the persons of the workers of foreign birth who had undergone military training, even when many years ago. These were able to engage in the more arduous parts of this industry with the least amount of physical detriment. Their posture remained good, and the amount of defective conditions was at a minimum among them. In this same exception belonged the very few among these workers who engaged in physical exercise or in athletics.

It is to the effect of military training in part, and to the biologic effect of new blood instilled by Europeans, that Woodruff (*Medical Record*, April 27, 1912) ascribed the raising of the athletic standard of this country. On the other hand, the same criticism can be made of military training that can be made of athletics in general or of college athletics in particular (Friedman, *J. A. M. A.*, March 9, 1912), namely, that all three of them choose only the best, train these to the highest degree, and leave untrained those that would be the ones most benefited by such training.

In any competition, however, where physical training of a high degree is necessary, the first line or flower succumbs to the first shock, and the second or later line bodies must be drawn from the various grades of physical rejects who combine their physical inferiority with the lack of previous training; and because of the number of these having definite and uncompensated physical defects, the inferiority of the mass becomes greater.

Military or athletic training, to be of universal benefit, whether for immediate military purposes or for raising the physical standards of the citizenship, or for ultimate military purposes, must train every individual, but espe-

cially the weak and the defective. The training of the latter shall, however, be aimed particularly at bringing out and using the strong qualities. The army of otherwise rejects would be trained to be an army of specialists. Besides, in drawing on all physiques and all types there would always be under training a representative average. Later lines would no longer represent only the rejects but would again be a representative average, with the added advantage that material that would otherwise not be used at all is now utilized in special endeavors in which they have special abilities. It seems that Nature always compensates other faculties by enlarging them for the ones that are defective. In modern times it is not pure brute strength which is alone required, and there are parts of a military or athletic organization where defectives of even high degrees can be utilized in some special fields. An individual who has found a place for himself in civil life despite his physical defects can find a place in these organizations. The principle of the conservation of energy holds everywhere.

Moreover, a recruiting medical officer or a college physical director must not be merely a separator of the good material from the bad, but his main field must be—and here a greater degree of discriminatory diagnostic ability will be necessary—to find out the nature of a defect, its extent, and the extent to which it will hamper an individual; and, further, to find out whether, and to what extent, such an individual excels in other capacities in order that he may be assigned a place in an appropriate field. Many otherwise helpless individuals would thus be assisted to find themselves physically and later, perhaps, industrially. Many instances of physical weakness are due to lack of exercise, sedentary occupations and faulty postures, and in these particularly would military training be of value. At present there is usually a highly trained military or athletic body of small minor proportions, and very much nullified by the major portion of untrained athletic or military bodies.

As a matter of fact, it is probably true that a modified universal military training, so arranged as not to interfere with the education of young men for their future occupations in civil life, would be of advantage to this country, not only from the economic standpoint of physical and industrial efficiency, but psychologically as a corrective of the lawlessness and ill-discipline which are among the gravest defects of American civilization.

EPIDEMIC ACIDOSIS IN CHILDREN.

THE recent occurrence in Belmont of two sudden deaths of children from acute epidemic acidosis recalls the grave importance of this unfortunately uncommon affection and raises the hope that in this instance a more widespread epidemic of the condition may not follow these two apparently sporadic cases. In the issue of the JOURNAL for May 20, 1915 (Vol. clxxii, page 747) we published an article by Dr. Arthur A. Howard of Boston on acidosis in children and in our editorial comment upon this article in the same issue we referred particularly to the valuable work of Dr. Carleton R. Metcalf of Concord, N. H., on the epidemic form of the disease. Dr. Metcalf's paper, which was published in the issue of the *American Journal of Diseases of Children* for January, 1915, was based on a study of one hundred consecutive cases occurring in the vicinity of Concord within a few months. At the present time, the attention of physicians is particularly referred to these two articles and to others noted in the editorial above mentioned. Familiarity of practitioners with the clinical picture presented by this somewhat rare disease is the more desirable at this time, since it may lead to the earlier recognition and prompt treatment of other cases that may arise in this vicinity, thereby, perhaps, saving lives which might otherwise be lost, and possibly leading to the observation of new phenomena concerning the disease which may be of value in its further study and explanation.

MEDICAL NOTES.

STANDARD DIETS FOR HEALTH DEPARTMENT HOSPITALS.—In order to establish standard dietary methods in the hospital service of the New York Department of Health, the Director of the Bureau of Hospitals sometime ago appointed a menu committee composed of the resident physicians, supervising nurses, matrons, and the dietitian of the Department's hospitals, directing the committee to prepare standard menus, a basic dietary table, and rules and regulations for the guidance of the employees in the kitchens and dining rooms. At the time of its appointment, this committee was instructed to make certain that the quality of the foods in the new menus would not be below that of the food in use at that time.

The new dietary methods were introduced in January, 1915, and have given complete satis-

faction. Not only has the quality of the food been above criticism, but as shown by the report for the first three quarters of the year 1915, a saving has been effected amounting to nearly \$10,000 in nine months in the contagious disease hospitals alone. In comparison with 1914, this represents a reduction of 3 2/3 cents in the average per capita food cost.

This saving has been accomplished in three ways: *First*, by actually diminishing the amount of high-priced food (meat) in the various diets, and substituting therefor other food-stuffs which were equally nutritious and agreeable. This substitution, of course, was made without the knowledge of the employees and patients. *Second*, by eliminating waste in the preparation of the food, an elimination made possible by the use of standard menus. *Third*, giving the employees the kind of food that they wanted, thus reducing plate waste.

These statements are from the weekly bulletin of the New York Department of Health for December 11, 1915.

NEW COURSES OF INSTRUCTION TO FOOD INSPECTORS.—In order to perfect inspectors in the details of the various branches of their work, Mr. Lucius P. Brown, Director of the New York Health Department's Bureau of Food and Drugs, has organized a course of lectures, conferences and demonstrations dealing with the various aspects of pure food work. These lectures are in the nature of a post-graduate course, and each detail of the work will be presented by experts selected from the inspecting force.

The plan of the course will be to have a general lecture first, followed by demonstrations to squads of not more than five in the field. It is expected that these demonstrations will last about a week in each subject.

Supervisor Inspector Geertsema, who is now delivering the course of lectures on meats, gave his first demonstration at Health Department headquarters on Friday. Inspector Huntington, in charge at Fulton Market, will begin next week and will handle the course in fish. Subsequently, Inspector Holborn will take up oysters, and other experts will be detailed to cover the other subjects.

PREVALENCE OF MALARIA, MENINGITIS, PELLAGRA, POLIOMYELITIS, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for November 26 states that during the month of September, 1915, there were in Arkansas 1977 cases of malaria and 104 of pellagra. During October there were in Massachusetts 19 cases of cerebrospinal meningitis, 28 of poliomyelitis and 402 of typhoid fever. During the same period there were 83 cases of poliomyelitis in Ohio, 35 in Michigan, and 28 in Minnesota. There were 96 cases of smallpox in Ohio and 602 of typhoid. There were 488 cases of typhoid in Maryland.

TYPHUS FEVER IN MEXICO.—Report from Mexico City on November 29, by way of Laredo, Texas, states that typhus fever has been extensively prevalent in the former city for the past two months. It is estimated that there are at present 11,000 cases in its immediate vicinity and that there is an average of 120 deaths a day from this disease.

NEW YORK DEATH RATE.—There were 1282 deaths in New York City during the past week as compared with 1385 during the corresponding week of last year, the respective rates being 12.52 and 12.94. This difference of 1.42 points means a decrease of 158 deaths or a saving of 158 lives. During the first forty-nine weeks of 1915 the death rate was 13.52 as compared with 13.69 for the corresponding period of 1914.

CORNELL UNIVERSITY MEDICAL COLLEGE.—In the issue of *Science* for December 3 is published the following account of the recently reorganized surgical service of the Cornell University Medical College at the Bellevue Hospital:

"At the head of the service there is now one 'visiting surgeon in charge' with a continuous service. He has general supervision over the entire work and is responsible only to the college and the hospital for its proper performance. There are two visiting surgeons who also have a continuous service limited to some special subdivision of general surgery. They are thus relieved of all routine work in order to devote their time to the particular work with which they are occupied. Under the visiting surgeon in charge are two associate visiting surgeons. These men are on the full-time salaried basis, and each has the care of one-half of the service. They have as assistants four juniors who are also surgeons to the out-patient department. The organization now also includes a laboratory of surgical pathology and a laboratory of experimental surgery, each under a full-time salaried man. These laboratories are available to all members of the staff, who there have the privilege of working on their individual problems. The entire staff has been appointed to positions in the department of surgery in the Medical College, and all students take a portion of their surgical ward work under this organization. The essential changes from the former system consist in having one head, continuous service, full-time salaried surgeons and laboratories under the immediate jurisdiction of the surgical service. Following is the staff as at present constituted: John A. Hartwell, M.D., assistant professor of surgery, visiting surgeon in charge; George Woolsey, M.D., professor of clinical surgery, visiting surgeon; John Rogers, M.D., professor of clinical surgery, visiting surgeon; Kenneth Bulkley, M.D., instructor in clinical surgery, associate surgeon; James Worcester, M.D., instructor in clinical surgery, associate surgeon; Fenwick Beekman, M.D., instructor in operative surgery, junior surgeon;

Benjamin Vance, M.D., instructor in pathology, surgical pathologist; J. W. McMeans, M.D., assistant in surgery, assistant in experimental surgery."

COLUMBIA UNIVERSITY PRE-MEDICAL COURSE AT THE LONG ISLAND COLLEGE HOSPITAL.—Beginning in September, 1916, Columbia University will give university courses in chemistry, biology, physics, French, German and English, at the Long Island College Hospital in Brooklyn, covering one year of college work.

STATE SURVEYS FOR STATISTICS OF INSANE.—The National Committee for Mental Hygiene, New York City, has a number of interesting plans on foot, involving surveys of different states as to the public and private provision for feeble-minded, epileptics, insane and allied defects. They have issued a map giving state surveys completed, under way and to be undertaken next. State surveys appear as completed for Pennsylvania, South Carolina and Wisconsin. State surveys under way are those for Arkansas, Missouri, Texas and Florida. State surveys to be undertaken next are Maine, Rhode Island, Connecticut, New Jersey, North Carolina, Georgia, Tennessee, Indiana, Illinois, Iowa, Kansas, Oklahoma, Washington, Oregon and California.

Of course a number of states in which the history of provision for the insane and allied defectives is longer and more complex are not regarded as requiring surveys at the present time. Massachusetts, New York and Michigan may be classed in this group of states not requiring mental hygiene surveys.

TRACHOMA IN THE UNITED STATES.—The outbreak of trachoma among school children in Jerome, Arizona, has been reported by the National Committee for the Prevention of Blindness, whose assistance has been requested in preventing the spread of the disease. Jerome is a mining town of three thousand inhabitants and is contiguous to a number of Indian reservations. According to the figures of the United States Indian Service, about 24% of the Indians in Arizona are afflicted with trachoma. It is supposed that sufferers from the disease, in coming to Jerome for supplies, spread the infection. In Douglass, Arizona, systematic inspection and treatment of school children afflicted with trachoma, is wiping out the disease. Whereas 78 cases were discovered there last year and placed under observation and treatment, only four new cases were discovered this year. In California the State Board of Health has taken precautionary measures to prevent the spread of trachoma by prohibiting children suffering from the disease from attending school.

In a recent bulletin of the State Board of Health of Kentucky, devoted to "Prevention of Trachoma," we find the statement made a number of times that trachoma not only exists in the

eastern section of the state, but is also found to considerable extent in the Blue Grass country and through the south and west. Dr. John McMullen, U. S. Public Health Service, and Dr. A. T. McCormack, who have been making a survey of conditions in Kentucky, have recently been making examinations of the eyes of school children in a number of the hitherto unvisited cities. Their investigations have shown that there is scarcely a community where trachoma may not be found. For instance, in Henderson, 81 pupils were excluded from the schools on account of trachoma; in Hopkinsville, 46 cases were found among 500 children examined; in Paducah, 97 cases were found out of 728 pupils examined. In fact, in practically every school visited, the number of children found with this disease, either well developed or in an incipient stage, was far beyond expectations.

A report from Oklahoma states that Mr. Charles Page, a millionaire oil operator of that state, will establish at Sand Springs, a semi-charitable eye hospital and sanitarium at a cost of \$200,000. The institution will consist of several buildings covering about eighty acres. There will be distinct units for whites, Indians and negroes. Trachoma, with which disease, the report states, about 75 per cent. of the Indians of Oklahoma are afflicted will receive special attention. The institution will be under the management of Dr. Daniel W. and Dr. Peter C. White, who for years were the Government trachoma experts, working among the Indians of Oklahoma.

A hospital for the treatment of trachoma has been established at Welch, McDowell County, West Virginia, by the West Virginia Health Council, with the coöperation of the United States Public Health Service. The health authorities decided to establish the hospital at Welch, as it was found that trachoma was widely prevalent in that county, but cases from any part of the state will be treated there.

EUROPEAN WAR NOTES.

ASIATIC CHOLERA IN AUSTRIA-HUNGARY.—The weekly bulletin of the United States Public Health Service for December 3, 1915, states that during the week ended August 21, 1915, there were in Bosnia-Herzegovina seven cases of Asiatic cholera. During the fortnight ended August 28 there were in Austria 8414 cases and 4996 deaths of this disease, the majority being among the civil population. During the week ended September 27, there were nine cases and four deaths of cholera in Croatia-Slavonia.

ARRIVAL OF HARVARD SURGICAL UNIT.—Report from Mr. Herbert H. White, manager of the Third Harvard Surgical Expeditionary Unit, announces the arrival of this unit at Falmouth, England, on Saturday, December 4. "The unit was met by Col. Sir Alan Perry (commanding

officer of the 22d General Hospital, where the first unit gave its service) at Falmouth, Eng., and by ex-Ambassador Robert Bacon in London; has been entertained at Oxford University by Sir William Osler (who was largely instrumental in the origination of the project of hospital units from American universities giving service with the sufferers of the armies in Europe); is to have luncheon with the London Harvard Club before moving forward to the hospital December 8 or 9."

VICTORIA CROSS AWARDED TO A PHYSICIAN.—In the issue of the *London Gazette* for November 18 is announced the award of the Victoria Cross to First Lieutenant George Allan Maling, M.B., R.A.M.C., "for most conspicuous bravery and devotion to duty during the heavy fighting near Fauquizar on Sept. 25, 1915." In the dispatches Dr. Maling's conduct is described in the following terms: "Lieutenant Maling worked incessantly with untiring energy from 6.15 a.m. on the 25th till 8 a.m. on the 26th, collecting and treating in the open under heavy shell fire more than 300 men. At about 11 a.m. on the 25th he was flung down and temporarily stunned by the bursting of a large high-explosive shell which wounded his only assistant and killed several of his patients. A second shell soon after covered him and his instruments with debris, but his high courage and zeal never failed him, and he continued his gallant work single-handed."

Dr. Maling is the son of a physician and was born at Darlington, England, in 1888. He was educated at Oxford and received his medical training at St. Thomas's Hospital, London. He was commissioned Lieutenant in the Royal Army Medical Corps on January 18, 1915, and went to France in June with the 12th Rifle Brigade. This is the first instance in which the Victoria Cross has been awarded to a physician during the present war.

WAR RELIEF FUNDS.—On Dec. 11 the totals of the principal New England relief funds for the European War reached the following amounts:

Jewish Fund.....	\$70326.65
New Belgian Fund.....	77,716.06
Serbian Fund.....	56,038.86
French Fund.....	29,407.39
Armenian Fund.....	24,683.38
Surgical Dressings Fund	14,239.00
Italian Fund.....	13,279.69
La Fayette Fund.....	13,088.99

BOSTON AND NEW ENGLAND.

THE WEEK'S DEATH-RATE IN BOSTON.—During the week ending December 11 there were 249 deaths reported, with a rate of 17.84 per 1000 population as compared with 216 and a rate of 15.65 for the corresponding week of last year.

The principal increases were pneumonia 43 against 23 last year, and heart disease 45 against 30 last year.

There were 41 deaths under 1 year as compared with 23 last year, and 90 deaths over 60 years of age against 75 last year.

Total deaths reported in 49 weeks from Jan. 2 to Dec. 11 were 11,113 against 11,080 for the corresponding period in 1914.

Deaths under 1 year reported in the same period were 1884 against 1860 for the corresponding period in 1914.

During the week the number of cases of principal reportable diseases were: diphtheria 76, scarlet fever 57, typhoid fever 1, measles 49, whooping cough 93, and pulmonary tuberculosis 57.

Included in the above were the following cases of non-residents: diphtheria 9, scarlet fever 10, measles 1 and tuberculosis 6.

Total deaths from these diseases were: diphtheria 1, measles 1, whooping cough 1 and tuberculosis 20, in which is included the following death of a non-resident diphtheria 1.

YOUTHFUL INSANITY.—The November bulletin of the Massachusetts State Board of Insanity reports the commitment of a little girl, aged nine years, to the Medfield State Hospital. She was born in New York of Italian parentage, and had been admitted to the Psychopathic Hospital on July 22 and discharged August 20, 1915. Her mother being unable to control her, she was again admitted on September 4, and on September 9 was committed with a diagnosis of juvenile psychosis, of the manie-depressive type. The Board has since transferred the child from the Medfield State Hospital to the Massachusetts School for the Feeble-minded at Waverley.

Probably the youngest person committed to a state hospital as insane was a child of four years who was committed to the Taunton State Hospital in 1899. The September bulletin recorded the commitment of probably the oldest person on record, being one hundred years and two months old.

GIFT TO HARVARD MEDICAL SCHOOL.—A gift of \$75,000 has been announced to the Harvard Medical School. This is the balance of the bequest of Morrill Wyman, who established the Morrill Wyman Medical Research Fund, the income of which is to be applied in promoting investigation concerning the origin, results, prevention and treatment of disease.

FREE HOSPITAL FOR WOMEN.—The recently published report of the Brookline Free Hospital for Women shows an increase for the year ending October 1, 1915, in the number of patients treated. The total number of patients operated on was 716. The number of consultations given

in the out-patient department were 6943, 1748 being new patients; 858 patients were referred to the hospital for further treatment.

ENDOWMENTS FOR SOCIAL SERVICE DEPARTMENT.—Announcement was made at the tenth anniversary session of the Social Service Department of the Massachusetts General Hospital that endowments to the amount of \$40,000 have been given to the Department. Mrs. Shepard Brooks has given \$15,000 and Charles Moseley of Newburyport, \$25,000.

INFANTS' HOSPITAL.—The Infants' Hospital is calling attention to its need of funds to carry on its work among sick and needy infants. The hospital can care for 800 more babies annually than it now has funds to support. To do this would require \$30,000 more a year. The hospital receives only \$6594 from invested funds and a small income from private patients and must depend upon gifts for any increase in its work. Last year it cared for 650 patients. With the exception of the summer accommodations of the Floating Hospital the facilities of this community to provide adequate care for its infants and to supply opportunities for research work are meager indeed, and a competent endowment of the Infants' Hospital is not only to be desired but is urgently necessary. Contributions may be sent to Mr. Nelson S. Bartlett, Treasurer, care of the Old Colony Trust Company, 17 Court Street, Boston.

PETER BENT BRIGHAM HOSPITAL.—The graduating exercises of the school for nursing at the Peter Bent Brigham Hospital, Boston, are to be held in the hospital at 8 p.m. on Friday, December 17 and will be followed by a reception until 11 p.m.

Miscellany.

MEMORIAL RESOLUTIONS FOR WILLIAM NOYES, M.D.*

WILLIAM NOYES died at his home in Jamaica Plain, October 20, 1915. The end came suddenly after an illness of many months, the gravity of which he fully realized.

He was the son of William and Martha Jane (Bailey) Noyes and was born in Boston, November 6, 1857. He was graduated from Harvard College with the class of 1881 and from the Harvard Medical School in 1885. While in the school he was a clinical clerk in the Danvers State Hospital for four months, and after graduation accepted a fellowship in psychology at the Johns Hopkins University. He was for a

* Adopted at a meeting of the Boston Society of Psychiatry and Neurology.

short time resident physician of the Baltimore City Lunatic Hospital, and in December, 1885, was appointed second assistant physician of Bloomingdale Hospital, New York.

He early became interested in the field of research in psychiatry, and in February, 1889, accepted an invitation to organize a psychological laboratory at the McLean Hospital, supplementing his previous preparation for the work by nine months of study in Vienna and Berlin.

It was pioneer work, difficult and too often yielding negative results, which he modestly declined to publish, so that of much that he did there is no record. Among other studies, he made investigations on the reflexes and published a part of his work in an important paper "On Certain Peculiarities of the Knee-Jerk in Sleep in a Case of Terminal Dementia." He made frequent contributions of critical reviews, chiefly to the *American Journal of Psychology*.

In February, 1892, he accepted the position of assistant physician of the Massachusetts Hospital for Dipsomaniacs and Inebriates, where he remained until April, 1896, when he was elected superintendent of the men's department of the Boston State Hospital. He was made superintendent of both departments of the hospital in May, 1905, which position he held until January, 1910, when he resigned to engage in private practice.

There can be no doubt that the change to the clinical and executive field was due to the lack of appreciation in that day of the money value of purely scientific work, which, unfortunately, still obtains, though in a less degree.

He was connected with the Boston State Hospital for nearly fourteen years and gave it faithful service. It was a transition period, the many difficulties and anxieties of which no doubt contributed materially to the onset and progress of his illness.

After his retirement from hospital life he made a careful investigation and census of the feeble-minded outside of institutions in Massachusetts, at the request of the State Board of Insanity, and rendered to the Board a most interesting and valuable report, which, unfortunately, has not been published.

For many years he was a clinical instructor in mental diseases in the Harvard Medical School. He was a member of the Massachusetts Medical Society, the American Neurological Association, the American Medico-Psychological Association and of the Boston Society of Psychiatry, of which he was the secretary at the time of his death.

He was an able man, of good judgment, but it was not easy for him to make decisions in important matters, and he did his work with many anxieties, contrary to the impression he gave those with whom he was not intimate. He was modest, sensitive, a man of warm friendships, domestic in his tastes, a loving husband and father.

Resolved, That the Boston Society of Psy-

chiatry and Neurology place on record its appreciation of the character and attainments of Dr. Noyes and the deep sense of the loss it has sustained in his death.

Resolved, That a copy of these resolutions be sent to Mrs. Noyes and his sons, be spread on the records of the Society, and printed in the BOSTON MEDICAL AND SURGICAL JOURNAL.

CHARLES G. DEWEY, M.D.,
GEORGE T. TUTTLE, M.D.

Correspondence.

PARIS LETTER.

THE POWER OF ADAPTATION OF THE HUMAN MIND.
(From Our Special Correspondent.)

PARIS, Nov. 13, 1915.

Mr. Editor: Psychology has somewhere been defined as the endeavor on the part of the mind to find out its own little game. Now, although this particular branch of study has never presented any special attraction to me personally, such a thing as going through life without giving the matter any thought at all is of course inconceivable, and I may frankly admit that there is one way in which the Ego reacts that still arouses in me unbounded wonderment as each new instance presents itself, in spite of a stretch of experience that is now beginning to be somewhat extended: the amazing facility with which a man accepts an altogether new, unexpected (not to say revolutionary, and, in many cases, extremely painful) change in his conditions of life.

During my travels throughout the breadth and length of Europe I have visited castles and strongholds without number. The greater part of these that go back a certain number of centuries contain prisons, dungeons, blackholes, obliettes, etc., in which it was the custom in those merciless days to imprison enemies for periods of a few weeks or months, up to decades of years, in some cases in total darkness, in others under such circumstances that the wretched inmate could not by any possibility assume the erect posture, and in still others under the most frightful conditions of dampness, draughts, vermin and feters. In practically all these places of confinement there was nothing but stone and earth; some were cut out of the actual rock. The food was usually bread and water, and the arrangements for the excreta of the body non-extant,—yet in cases without number not only men but women and children were taken from surroundings of luxury and thrown at a moment's notice into such dungeons, where they were held for years and years, to come out finally not only apparently none the worse physically but even in a fairly composed state of mental equilibrium! This is one of the most striking instances of the adaptability of the human mind that I have met, and it is all the more remarkable in that, in the generality of cases, the said mind had been, through the entire period of incarceration, not only deprived of all intellectual pabulum, but even of the sound of the human voice. The dungeons at Loches, in Touraine, are one of the most amazing illustrations of what an ingenious mind can devise in the way of prisons. Those at Coucy are likewise fairly remarkable.

The following is also a rather striking example of an utter upheaval in a person's life and prospects, and one which medical men are unfortunately called upon to witness too often. It is that of the prosperous man between fifty and sixty, who has made his way in life, has a charming family, and has left the city perhaps and centered his interests on a country house or farm; to all external appearances his situation seems one that anyone might envy, and his con-

dition of health points to long life and happiness. Yet he has for some time back been having trouble with his intestinal functions; he then notices that his weight is falling off; finally he has a hemorrhage from the bowel, and the proctoscope reveals an epithelioma fifteen or twenty centimetres up. Exploratory laparotomy then shows dissemination throughout the entire peritoneum, with possible secondary deposits in the liver, and we know that our prosperous and healthy man has not three months more before him. Is there one of us that has not been awed by the apparent ease with which such a man accepts his fate? It is something positively incredible.

A third instance of this astounding pliability of the human mind was brought to my notice recently in the following manner. My bell rang the other afternoon and there was ushered in a tall, slim youth in a rather-the-worse-for-wear khaki uniform, whom, after a moment's uncertainty and surprise, I recognized as a young Englishman of my acquaintance, one of those clean, well-set-up, pink and white lads of which Great Britain alone possesses the secret, the sort that we generally associate with flannels, velvet tennis-lawns, long summer evenings, and simple, well-groomed girls with soft, low voices and beautiful white teeth. But my young paragon was a weedy-looking customer now, and no mistake; he looked very much as though he had had a personal encounter with the neighbor's bull, and had by the same agency been rapidly transferred through the air to the adjoining lot. His juvenile beard and hair were sadly unkempt, and his uniform and heavy shoes, though cleaned, had a curious grayish-white hue that revealed the clay of the Champagne trenches.

He was eighteen or nineteen; had enlisted as a chauffeur, as he was very keen on motoring; and had been told off on one of the ambulance sections back of a French corps d'armée. And Fate had pitchforked this innocent stripling, whose previous view of life, as I said, had not extended beyond pretty girls, tea-parties, and the lovely landscape of a south-western county,—into what do you suppose? all the terrible fighting during the French attack in Champagne of September 25th and the days following! He had now been sent to Paris to take over two new ambulance-cars with all the latest improvements; and as he and his companion had been a little "chesty" about showing their papers to the military police at the railroad station the previous evening, the two of them had just spent the night and part of the day at the military jail! But do you suppose that any of these experiences, rather new and startling it would seem to a callow youth of eighteen fresh from his mother's and sisters' skirts, upset the equanimity of this scion of Albion? Not the least bit. I kept him to dinner, and he told me the entire tale in as simple and natural a manner as though he had been describing the occurrences of fair-day at the nearest county-town. I verily believe he would have warmed up more if he had been speaking of the encounter of his favorite eleven with a rival team! At any rate, here is, in a few brief lines, what this refreshing innocent had just passed through.

After serving a while in the west of the line, his section of cars was ordered east of Rheims, and the men had just had time to get themselves installed when the big attack began. He and some of the others had set up housekeeping in a hole in the ground; it seems this is warmer than life under canvas, though the rats are a perfect plague and interfere with sleep. Their trick was to run from the end of the exit-communicating-trench back three kilometres across open country pitted with shellholes and without roads, to the first-aid station about on a level with the French artillery hidden away in the wood. The French front-trenches facing the enemy have entrance and exit trenches running backwards for a long way at right-angles, and the badly wounded men are brought along the exit-trenches by two bearers and a two-wheeled sort of barrow-stretcher. The exit is sheltered from fire by a bank, behind which is stationed

a surgeon for urgency first-aid,—bad hemorrhage, etc. while overhead can be heard the whiz of bullets p-r-r-t, p-r-r-t. The ambulance loads up at this point and then makes its way back as rapidly as circumstances allow, under fire all the time, and with the roar of the French guns *right in its face*, naturally the shells passing overhead! My young acquaintance had never been hit, though his car had. During the French attack this section of ambulances carried back nearly 6000 stretcher-cases, and for three days and nights the men neither lay down nor took off their clothes; they got something to eat as best they could all cold, and slept an hour or two in the corner of their driving-seats when they could hold out no longer.

Well, you would have thought that this was hectic enough to stagger my pink and white boy; but what is more extraordinary still was the matter-of-fact way in which he described the appalling scenes of butchery he had been called on to witness. With these modern, high-explosive shells, which are practically the only sort used in trench warfare, the shrapnel being of very little service, men are simply blown to bits. A limb, two limbs disappear into thin air—nothing left of them. If the soldier is not killed outright, he may die during removal along the exit-trench, or during motor-transport back to the first aid post. The receiving surgeon then simply has him rolled out of the stretcher onto a pile of other similar cases, and the stretcher starts back on its return journey. At the three-kilometre station first-aid is rendered, and another service of motor-ambulances then takes the less serious cases on to rail head, or to a large emergency base-hospital with 1800 beds, familiarly known as the graveyard, as so few of the wounded admitted ever come out again. This hospital takes all the bad cases, head, chest and abdominal wounds, and shattered limbs that will not bear transportation. It seems that in the vicinity of this cheerful establishment there is a large pit, the size of a big dwelling room, entirely given up to the reception of amputated portions of human anatomy, arms, legs, etc. An orderly appears with a big basket, from which he dumps out a consignment of limbs, and then scatters some earth over them; shortly afterwards another orderly appears, goes through the same performance, and so on.

Now, my youth had been moving in this atmosphere for weeks, and you would have thought that the mere horror of the thing would have sufficed to turn his hair prematurely white; yet he told me all about it as quietly and naturally, and with as little emotion or use of superlatives, as though he had been talking about his father's stables or his mother's flower garden. Nor was there so much as a suspicion of "pose" about the affair; he was not affecting the indifferent, or playing a part, in the slightest degree. No His mind had merely adapted itself to the circumstances so thoroughly that it was to him simply his day's work, his "little bit", to use the British term this was his job, just as it otherwise might have been his job to start from his country-place each morning catch a train, and go in to work at a bank in the city, as so many other of his young acquaintances undoubtedly do. And he has now gone back to the front again as cheerful as a sandpiper, buoyed up by the hope of a week's leave at Christmas, when, as he remarked, he jolly-well intends to scuttle across the channel and show himself to the "Mater",—though I fancy there will be a pretty girl not far away that will have to be looked up, when he has paid his respects to the said Mater; he appeared to me to dwell rather more on this prospect of getting home than young men usually do when their mother alone is in question.

But could any more striking example of the marvellous adaptability of the human mind be imagined than the case of this youth? Men can stand a good deal, as we all know; but there are not so very many laymen who can view unmoved a mangled human body.

MEDICAL RELIEF IN BELGIUM,
(From Our Special Correspondent.)

OXFORD, Nov. 9, 1915.

Mr. Editor: At a meeting of the Central Committee for the Belgian Doctors' and Pharmacists' Relief Fund on October 21st a report was made by the committee of Belgians which has been distributing the Fund, namely the "Aide et Protection aux Médecins et Pharmaciens Belges Sinistrés." The report showed an increase in the number of medical men in Belgium who are receiving pensions from the Association.

It seems that the Belgian Committee has not been able to give assistance to the medical men of Belgium as freely at it would like. Many worthy requests for assistance were refused inasmuch as the committee was not empowered to do anything more than relieve the daily needs of their applicants. The English Committee, which has largely financed the scheme, has done so with the following provision:

"No moneys must be distributed except for the immediate pressing needs of the individual sufferers, and in no case for restarting them in their profession or private affairs."

Under these circumstances the Belgian Committee decided to sell some of the medical supplies sent to them by American doctors. The money thus obtained, they thought, would be well spent in helping those medical men in Belgium who were in need of special assistance but who were ruled out by the provision of the English committee. The Belgian Committee, therefore, approved the creation of a special fund of 25,000 francs. Out of this money advances were to be made for damaged premises and, as far as possible, assistance given for rebuilding practices.

It was decided that help should be given only in cases of the most urgent need in order that those, whose losses were comparatively small, might not deprive others, who had been entirely ruined, of indispensable assistance. Each distribution of money was to be made with the understanding that it should be paid back in better times.

In this report, Dr. Péchére, the president, said in part:

"The committee invites you to endorse its action, being of the opinion that no other disposal of the money could better carry out the intention of our American confrères than that proposed by M. Coppez and the special commission—viz., the transforming into a reconstruction fund the product of a sale of drugs and medicaments which are still fairly easily obtainable, and of which the distribution would have been difficult and expensive. Assured beforehand of your consent, the special committee has undertaken again the examination of the dossiers, several of our confrères finding themselves in immediate need of benefiting under the scheme without delay."

Reports by M. Laruelle showed the conditions of some of the doctors in Belgium and the grounds upon which grants from both funds were made. Some of the cases cited are given below:

"Dr. C—, of D—, ruined like the other medical men of his city by the complete destruction of his house and its contents, and the almost total ruin of his clientèle, received in April last an allocation of 600 francs. A monthly allowance was granted of 700 francs for three months as from July.

Mme. M—, of E—, whose husband had joined the Belgian army after the destruction of his property and practice, is a chronic invalid. She has been received into a charitable institute. An allocation was made to her of 800 francs in May. A further grant of 700 francs was made in the month of September.

Dr. T—, of H—, 70 years of age, with two dependent children, has lost his practice. He received a monthly grant of 600 francs in June, July and August, and a further grant of 200 francs was made

for September. The same sum was granted Dr. D—, of B—, for September. He continues to practice in B—, but that village has been almost destroyed. He has received a grant of 400 francs in June."

Announcement was made that three more cases of instruments had been recently sent into Belgium through Mr. Hoover, the American who is at the head of the Commission for Relief of Belgium, and the secretary reported that former consignments of instruments had been gratefully acknowledged.

The financial statement of the English Committee shows that up to the date of the meeting about \$90,000 had been contributed to the fund.

DRUG TRADE WITH GERMANY.

On October 21st, Sir Edward Grey, writing in response to questions concerning the importation of drugs and other manufactured articles from Germany, said in part:

"What His Majesty's Government is to do is to give directions to His Majesty's ships that particular consignments are not to be captured and brought in for adjudication in a prize court. As regards goods ordered and delivered since March 1, 1915, such action has only been taken: (1) in the case of a few consignments of certain drugs unprocureable except from enemy territory, such as salvarsan and novocaine; (2) in case of certain natural products, e.g., sugar-beet seed, urgently required by important industries in other countries, and unprocureable except from enemy territory; and (3) in the case of machine knitting-needles, beet-sugar slicing knives, scientific or technical publications required by universities or educational establishments in a neutral country, and a few articles such as a stained glass window required by religious establishments to complete orders placed a long time ago with an enemy firm. It is difficult to form an estimate of the value of these articles, but I believe it would be certainly less than \$300,000 altogether. It should be added that these consignments have been allowed to pass either in response to urgent representations of certain neutral governments based sometimes on undeniable humanitarian grounds or to meet certain home demands."

On talking with one of the local druggists here I found that he is obtaining some drugs, for instance aspirin, from the enemy through Switzerland. I presume these drugs would not be included in Sir Edward Grey's statement. It is also possible to obtain from Germany or Austria any medical books which are not in print in England. A number of students in the university have received books direct from Vienna by ordering through the local Oxford booksellers. They are sent out by way of Holland, usually after a delay of several weeks.

Whether or not such practices are carried on generally throughout the country and with regard to books and drugs of other sorts, I do not know, but it seems quite possible.

Sincerely yours,

W. G. P.

EUTHANASIA IN WAR.

BOSTON, Nov. 27, 1915.

Mr. Editor: In the summer of 1864, we were making instructive studies of Peyer's glands, with the hope of giving more successful treatment to the many cases of chronic diarrhea in the Cumberland U. S. A. General Hospital at Nashville. A senseless alarm was sent to the War Department about the "cutting up" of deceased comrades and the receipt of an order forbade post mortem examinations. I was, therefore, unable, in the following case, to ascertain the deeper lesions, the condition of the optic commissure, etc.

The patient came to us, with about 700 other acute cases of gunshot injuries, on the night of the first day's fight at Nashville in December, 1864. Some of the men were brought in ambulances, but more in hay wagons without springs, a mile from the field, over frozen roads, deeply rutted by the wheels of batteries and supply trains of previous days. As acting executive officer, I was called to examine a man in one of the wards, who was persistently clamoring for euthanasia. When I reached him, sitting on a stool in the midst of a crowd, he asked me to stoop down, look at him and then listen to his request. I found that considerable parts of both optic cones had been shot away, including the arch of the nasal bones. There was now no arterial hemorrhage, no complaint of pain beyond a sense of soreness, no special constitutional disturbance. Pulse was notably small. Deformity of face was extraordinary. One eye ball had been carried off in the progress of the missile; the other rested on the cheek (half way down the face) held by its optic nerve. He began at once to argue his claim, in a slow, deliberate and low voice. He exhibited no hysterical haste to die, though it was evident that for him *life* and not death was "the king of terrors." He steadily maintained that life would be insupportable should he get about again. I listened as carefully as possible in the confusion of cries for attention of forty or more on the floor and the beds of the ward; doctors and nurses were embarrassed by their urgency. He was quiet. The clear working of the mind, the normal sequence of thought surprised me, looking down upon such ruin of structures in the very neighborhood of the anterior cerebral lobes. He politely paused for an answer. I cannot state verbatim what I said, but the gist of it was that none of us could preceive the course of his case, nor be justified in hastening the approach of death by medical or surgical procedure. He died that night in coma.

The pith of all this is in two points: First, the gravity of the injury so close to the supposed region of cerebration, the anterior lobes, *without disturbing mentality*. Second, the cause of death. The word coma explains nothing; was it the over-topping hopelessness, an object repulsive to look at and even more so, to think of; the state of mind, producing excessive secretion in certain glands, thrown into the circulation as a toxin paralyzing innervation?

W. B. TRULL, M.D.,
Late Asst. Surgeon and
Brevet Capt., U. S. V.,
Asst. Surgeon, Prussian
Army, Franco-Prussian
War, 1871.

18 West Cedar Street.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING DEC. 4, 1915.

No contributions for the week ending Dec. 4, 1915.

Previously reported receipts.....	\$7873.84
Previously reported disbursements:	
1625 standard boxes of food @ \$2.20, .	\$3557.00
1274 standard boxes of food @ \$2.30, .	2930.20
353 standard boxes of food @ \$2.28, .	804.84

Total disbursements..... 7310.04

Balance \$ 563.80

F. F. SIMPSON, M.D., Treasurer,
7048 Jenkins Arcade Bldg.,
Pittsburg, Pa.

RECENT DEATHS.

DR. FRANCIS C. MARTIN has died at his home, 27 Dudley Street, Roxbury, Mass. He was born Mar. 22, 1858, attended the Roxbury Latin School and was graduated from Harvard in 1879. Later he was graduated from the Medical School, and went to New York, where he continued his studies in one of the hospitals. After that he returned and took up his permanent practice in Roxbury.

Dr. Martin was a son of Dr. Henry A. Martin of Boston, a surgeon, and the first to introduce animal vaccine into this country. His mother was Frances Coffin Crosby, a daughter of Judge Crosby of Lowell, Mass. Dr. Martin was president of the New Hampshire Society of the Cincinnati, and a member of the Massachusetts Historical Society, the New Hampshire Historical Society, the Old Colony Club of Plymouth, Mass., and of the Harvard Club. He was a great lover of old books. Dr. Martin was a Fellow of The Massachusetts Medical Society from 1882 to October, 1914. He was an associate member of the Boston Medical Library, to which he had presented the collection of books on vaccination belonging to his father.

APPOINTMENTS.

HARVARD MEDICAL SCHOOL.—At the latest meeting of the Corporation of Harvard College, the following appointments were made in the Harvard Medical School: Dr. David Cheever, as associate in surgery; Dr. James L. Huntington, as fellow in obstetrics; Dr. Frederick C. Irving, as fellow in obstetrics; Dr. Foster S. Kellogg, as fellow in obstetrics; Dr. John B. Swift, as fellow in obstetrics; Dr. Samuel C. Harvey as Arthur Tracy Cabot fellow in charge of the laboratory of surgical research.

GRAFTON STATE HOSPITAL.—Dr. William A. MacIntyre has been appointed assistant physician to succeed Dr. George K. Butterfield, resigned.

BOSTON CITY HOSPITAL.—Dr. Edward B. Allen resigned from the Danvers State Hospital to accept an appointment on the staff of the Boston City Hospital.

NOTICES.

THE SOCIETY FOR THE ADVANCEMENT OF CLINICAL STUDY announces a continuation of its bureau of information relative to surgical and medical clinics held in New York City. A bulletin board is maintained for this purpose at the Academy of Medicine, 17 West 43rd Street, in charge of a competent attendant, who will be on duty from nine to twelve in the morning and two to six o'clock in the afternoon to answer inquiries. The special telephone number is 3375 Bryant. The clinics held at the various hospitals are posted on a special circular of information, which will be mailed to outsiders at 50 cents per week to cover postage, etc. The bulletin board maintained at the Academy also contains the daily clinics as well as those held at stated hours in various hospitals. The facilities thus offered afford to visiting physicians who are interested in observing special operations and operators or clinicians, an opportunity to obtain the desired end with the least trouble.

INFANTS' HOSPITAL, BOSTON.—A clinical meeting of the staff of the Infants' Hospital will be held at the Rotch Memorial Building, 55 Van Dyke Street, Friday, December 17, 1915, at 8.15 p.m.

SUBJECTS.

- I. Intravenous Injections in Infants.
- II. Diagnosis of Duodenal Catheter.
- III. Demonstration of Cases.

Members of the medical profession are cordially invited.

The Boston Medical and Surgical Journal

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SYMMETRICAL SYNOVITIS IN HEREDITARY SYPHILIS.

By ABNER POST, M.D., BOSTON.

In the *Lancet* of February 27, 1886, Mr. H. H. Clutton, assistant surgeon at St. Thomas Hospital, published an article on "Symmetrical Synovitis of the Knee in Hereditary Syphilis" with a table of eleven cases. Of the eleven cases, Mr. Clutton furnished seven, Mr. Nettleship, of the eye department, furnished three, and Mr. Lawford furnished the eleventh.

The predominant features of the disease as reported in this article were the symmetry of the affection, the freedom from pain, the long duration of the symptoms, and the free mobility of the joints throughout the course of the disease.

There was in each case evidence of syphilitic heredity. The patient generally complained of stiffness in one knee which was then found full of fluid but not tense. On careful examination, the other knee was also found to contain fluid but not to the same extent as the one for which advice was sought, so that it is fair to assume that the knee to which attention was directed by the patient was affected some little time before the patient felt any inconvenience. It is referred to as an "insidious chronic synovitis." The swelling was accompanied by considerable thickening of the synovial membrane, but the marked feature was the increased quantity of

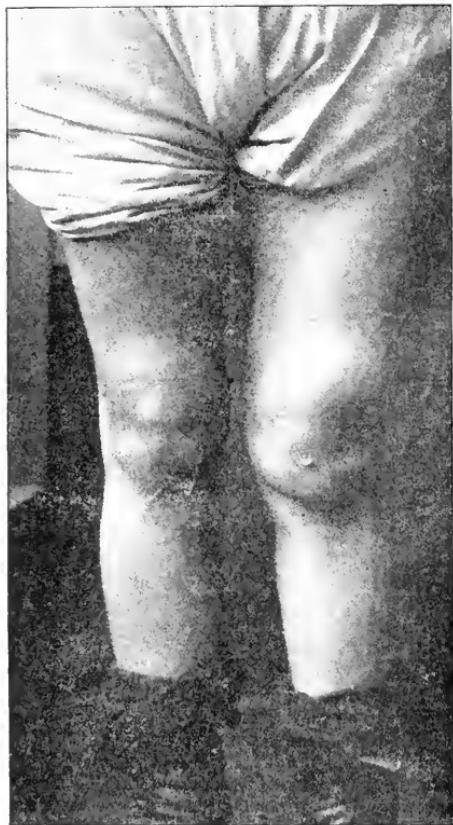
synovial fluid. The joints were never tense but gave a sensation of flaccid fluctuation. The bones were not enlarged. Sometimes nodes were found at a distance from the joint. There was no alteration in the knees for many months. Those that were treated by splints and rest in bed were as slow in getting well as those that had had no local treatment whatever. Of the eleven cases, nine had interstitial keratitis, and one had traces of an earlier attack. Five had Hutchinsonian teeth, four had nodes on the tibia, two were absolutely deaf.

A little study of Mr. Clutton's table shows that the interval which elapsed before the involvement of the second knee was sometimes so long that the first knee must have been considered by itself—and in other cases there was a considerable degree of tenderness in one or both knees. So that the variation in symptoms is sufficient to make the diagnosis sometimes obscure.

Although interstitial keratitis was present in ten of the eleven cases, symmetrical synovitis also occurs in cases in which interstitial keratitis is not present. In one personal ease the diagnosis was uveitis; in another the patient was born blind—in still others there was no disease of the eyes present. Mr. Clutton believes this affection of the knees to be comparatively rare. Fournier mentioned Clutton's article in a foot note in his book on "Late Hereditary Syphilis" which was published in 1886, the same year as Clutton's article, and said that he could not doubt the accuracy of Mr. Clutton's observation though he had never seen identical cases.

A careful study of syphilitic children shows the symptom to be comparatively frequent. The fact that the joints are seldom fully distended,

that they are painless and interfere but little with locomotion explains their infrequent recognition. These joints have been compared to interstitial keratitis which is usually symmetrical but may be single or the two sides affected with so long an interval that the first case is single so far as diagnosis and treatment are concerned.



An example of Clutton's which occurred in a little girl who had also interstitial keratitis, Hutchinsonian teeth and chorea.

The same condition evidently occurs in synovitis of the knee. There was an interval of twelve months between the two knees in Mr. Clutton's eleventh ease.

These knees are seldom painful but they sometimes make locomotion awkward. Patients trip easily. Sometimes the joints become somewhat flexed, and walking is more awkward and even difficult. The fluid is slowly absorbed but it is usually quickly diminished, sufficiently to relieve symptoms.

The fluid is thick and the capsule seems thickened, but the joint surfaces are not injured, so

that moderate exercise is not injurious. The thickened capsule and its contents show often a sufficient x-ray shadow to define the shape of the synovial cavity. The radiogram often shows changes in the tibia but none in the joint itself.

The recovery is usually perfect, but not always. One ease to my knowledge recovered with slight flexion, which was never fully corrected, but the patient walks and has no disability beyond that incident to imperfect extension.

If we consider Mr. Clutton's knees as a type, it must be recognised that knees occur which are not true to type. A little girl in the orthopedic department of the Massachusetts General Hospital was admitted with knees which contained very little fluid and in which flexion was the most prominent symptom. There were no other



These two radiograms show the femora and one tibia from a case of symmetrical synovitis of the knees at the Children's Hospital.

signs which could be attributed to syphilis and the Wassermann report was negative. The x-ray of the knee joints showed no sign of disease in bone or cartilage but the tibiae showed a thickened cortex which was believed to be syphilitic. Within a short time, while she was still in the hospital, she developed an interstitial keratitis and a family history was obtained which was strongly suggestive of syphilis. The knees, and also the eye recovered under anti-syphilitic treatment. There is reason to suspect that joints of this class have been operated on as tubercular.

Symmetrical synovitis occurs in other joints. Mr. Clutton's eleventh case had a history of a swelling of both ankles at the commencement.

Taylor, in his chapter on dactylitis, says: "In some cases an effusion into the joint-cavity takes place slowly and without pain." A boy of ten with intermittent haemoglobinuria has symmetrical synovitis of both wrists and also elbows. His knees are quite distended with fluid. He was also a patient at the eye and ear infirmary for interstitial keratitis.

A young lady was referred to me recently with a question as to the character of the swelling of her knee. She is thirty-one years old, has had trouble with her knees ever since she was thirteen. Both knees are quite full. They vary in fullness from time to time; when they are tense they are quite painful and interfere with locomotion. She wears a bandage about them which gives her a sense of support. Her ankles are both distended with fluid and she always wears high shoes for the same reason that she wears the bandages about her knees. She has had no other signs that can be traced. Her parentage is unknown. Blood for Wassermann is negative. Her knees correspond exactly to Mr. Clutton's description. There has not yet been opportunity to learn the effect of treatment.

Local treatment of the knees seems to be unnecessary and in many cases actually harmful by confining the child when it needs fresh air and exercise. Treatment for the constitutional condition is, however, necessary. Mild mercurials often act very well but sometimes the iodides do better. Salvarsan may be used as an adjuvant, often with benefit, but a sudden absorption of the effusion is hardly to be expected. In general, treatment acts slowly. The effusion is absorbed sufficiently to allow free use of the legs but it can still be recognized for many weeks or even months after treatment has been instituted. Some cases which have not been recognized and treated hitherto as syphilis often respond very quickly.

Symmetrical synovitis of the knees has occurred so often in conjunction with interstitial keratitis and Hutchinsonian teeth that such a triad may be considered as valuable as Mr. Hutchinson's triad of interstitial keratitis, Hutchinsonian teeth and deafness.

SOME MODERN IDEAS ABOUT ANAESTHESIA.*

BY FRANK L. RICHARDSON, M.D., BOSTON.

THE duties of the anaesthetist have not been strictly defined. To my mind, the anaesthetist is to look after the welfare of the patient during the course of the anaesthesia, and to offer suggestions as to preliminary and post-operative treatment that concerns the anaesthesia. If this definition is roughly accurate it includes a number of duties besides the actual administration of the anaesthetic.

Not many years ago, it was enough if the anaesthetist got his patient off the table alive, no matter what discomfort the patients had before the actual business of operating, or what happened to them afterwards. Happily for all concerned, those days have passed in all enlightened communities. Not only is the surgeon critical, but the laity, at least in this community, expect certain refinements which not only add to the comfort and safety of the patient, but reflexly add to the reputation of the surgeon. A patient who has had one unfortunate experience will not be very likely to seek more surgical assistance unless he is actually driven to it—in fact he may influence others from seeking assistance by his tales of suffering. Please do not think that I believe that all suffering can be prevented by the anaesthetist, but I do feel sure that by proper co-operation between the surgeon and the anaesthetist a considerable amount of suffering can be avoided.

Let us begin with the preparation of the patient. The preparation depends to a certain extent on the field of operation, yet there are certain things done as a routine, such as the cleaning out of the intestines, and having the stomach empty.

It is the custom with some operators to give castor oil the night before the operation and an enema the morning of the operation. I believe that this is a most pernicious custom. While castor oil will certainly clean out the intestinal tract, it leaves a very unpleasant condition. Castor oil is an intestinal irritant and as a result of its use after the violent evacuation, peristaltic movements cease for a varying length of time. If the operation has been on the abdomen this period of intestinal stasis facilitates the accumulation of gas with results that are always painful and sometimes dangerous. Isn't it more rational to give a saline cathartic or Russian oil, followed by a cleansing enema, than to use castor oil? Catharsis should never be too active before an operation because of the debilitating effect, and I believe that it is well spent to take two days in preparation in cases of chronic constipation or in cases where the intestinal contents must be completely evacuated.

*Read before the Chirurgical Society of Boston.

Another matter to be considered is the question of food. Here I realize that I am treading on dangerous ground and that no hard and fast rules can be laid down, but there are certain fundamental principals that should be considered.

Where either ether or chloroform is to be the anaesthetic selected, we should try to have the food contain as large an amount of carbohydrates and sugars as possible because it is well known that ether has a tendency to produce a condition of acidosis in patients not having a reserve supply of glycogen in the liver. It is also stated that the degenerative processes in the liver caused by chloroform anaesthesia are largely prevented if the liver has a sufficient supply of glycogen. Particular attention should be paid to this factor in children and debilitated patients. Starvation is above all things the condition that should be prevented, for where there has been a prolonged fasting the glycogen of the liver is rapidly used up. Diabetics form a special group, and I feel strongly that no diabetic should be operated on except in the gravest emergency without a preliminary course of dietetic treatment given by a competent medical man. While it is true that we get away with many operations on diabetics under ether, we are sometimes surprised and alarmed at the symptoms following comparatively trivial operations in other cases.

Around Boston, until within a very short time, we have hardly considered any other anaesthetic than ether. There are several reasons for this. Of all the general anaesthetics, except nitrous oxide, ether is the safest in the hands of the unskilled or moderately skilled. We have, too, a pride in the part Boston has played in the introduction of ether and this is one of the principal factors that has led to its traditional use here. Ether is not the only anaesthetic to be considered even if it is the safest in the majority of cases. Nitrous oxide, nitrous oxide and oxygen, chloroform, etc., must at least be considered, and in selected cases one of these is sometimes safer than ether.

I should like just to mention a few indications for the use of some other anaesthetic than ether. No case of tuberculosis of the lungs should be given ether without consideration of some other anaesthetic. The danger is in direct proportion to the activity of the process and the general condition of the patient. I have quite recently seen two cases of prolonged ether anaesthesia in which the administration of ether lighted up an old and unsuspected tubercular process. Fortunately in these cases the process quickly quieted down, but that was merely an accident. In tuberculosis of recent origin and especially in active tuberculosis, the patient may recover from the operation only to die from tuberculosis, and the anaesthetist, while he escaped censure, may have been responsible for the unfortunate outcome. Bronchitis is another condition in which one should consider some other anaesthetic.

Since the substitution of novocaine for cocaine in local anaesthesia we have been doing more and more operating with this form of anaesthesia. It has great advantages in many cases. In deciding between local anaesthesia and general anaesthesia there are a number of questions to be considered. Among these are duration of the operation, site of the operation, sepsis, the temperament and general condition of the patient. Local anaesthesia does one thing that must never be overlooked—it does away with the mental and physical discomfort of taking a general anaesthetic. It is true that this discomfort, thanks to more refined methods of giving general anaesthetics, is now much reduced, so that many patients have no physical discomfort and the period of mental discomfort is greatly shortened, yet to some people taking an anaesthetic rather than the operation is the thing to be dreaded. On the other hand, there are many people whose temperament contraindicates the use of local anaesthesia. They do not wish to be present at their own operation. The proper use of morphine and scopolamine will in many cases do away with this objection, and I wish to urge the more general use of morphine and scopolamine in proper dosage as a preliminary to the larger operations under local anaesthesia.

Spinal anaesthesia is another procedure that has a very distinct place. I have rather strong opinions on this subject. Statistically it is much more dangerous than most general anaesthetics or novocaine locally, but in given cases I believe that it is much less dangerous. Especially is this true of operations on the prostate and the more serious operations on the rectum. It is also the anaesthetic of election in diabetics where the field of operation is not too high, and it must be considered in cases with pathological lung conditions.

There is one very considerable advantage that these forms of local anaesthesia have over general inhalation anaesthetics. Of themselves they do not interfere with the taking of regular and sufficient food, which may be of greatest importance.

Nitrous oxide and nitrous oxide-oxygen are anaesthetics that are not properly considered in our selection. Both have been sadly neglected except by those men who have the nitrous oxide-oxygen hobby, and by those few have at times been over-done, so that I think we all share a prejudice against the use of nitrous oxide-oxygen. The truth is we do not know all we should about nitrous oxide-oxygen, and I must confess that I advise its use only in a very limited number of cases. In general, these are cases in which the operator does not require muscular relaxation and where the operation requires only a short anaesthesia. It now seems crude in most cases for anyone to do a paracentesis of the drum without an anaesthetic or a dilatation and curette under ether when nitrous oxide-oxygen is available. I mention only these two operations,

but of course there are many others where it is an excellent anaesthetic both for the patient and the operator, and does away with some of the discomfort of most general anaesthetics.

As to the actual giving of the anaesthetics, there are only a few things that need to be said. One must remember that all anaesthetics are poisons with the possible exception of nitrous oxide, and therefore, the less taken by the patient the better. This being the case a position on the table which gives muscular relaxation, and surgical technique which does not require profound anaesthesia are always desirable. It is never wise, however, to hurry the induction of the anaesthesia. One anaesthetic method that I wish to call particular attention to is the method of rebreathing or closed method. Some anaesthetists boast of the small quantity of ether required by this method. It is true that a much smaller amount of ether is added to the inhaler, but it is also true that, where asphyxia plays no part in the maintenance of this anaesthesia, the patient is still getting 15% by weight of ether vapor, the only difference being that the ether exhaled by the patient is again inhaled with this method instead of being thrown off into air as in the open method. I said "if asphyxia played no part in the anaesthesia," but as the method is usually applied asphyxia does play a part, and a part that is far from desirable. Patients anaesthetised by the closed method are frequently a little off color and I believe that they have a greater amount of anaesthetic shock or fatigue. I do not wish it understood that rebreathing has no place in the giving of anaesthetics—this is not true, but when rebreathing is used the oxygen content in the mixture must be maintained as high as in the surrounding air and we must realize that although the amount of ether added to the inhaler is much less than by the open method, the per cent. inhaled by the patient must be approximately the same. What, then, are the advantages of using this method in any cases? According to Henderson's theory a certain increase in the amount of carbon dioxide inhaled combats the state of shock. While I do not entirely believe in all of Henderson's deductions, it is clinically true that in some cases a condition which we call shock is somewhat relieved by an increase in the amount of carbon dioxide inhaled. We can, however, maintain a proper oxygen content while still increasing the amount of carbon dioxide. This leads to a consideration of the condition of shock. There is probably no more disputed phenomenon in the whole realm of surgery, and when we collect all the real facts about it we have very little to show. Of course shock is a real condition, but of the mechanism of shock we know very little. Crile's theories, while they are in part true, are not the whole story by a long way. Personally I think there are two, sometimes distinct, states. True, surgical shock, which is due in part to hemorrhage and in part to trauma, causing afferent nerve

impulses which result in exhaustion of the central nervous system. There is, however, another state resembling shock in which these factors play but little part. This is due to the length of the operation and certain factors in the course of the anesthesia. I prefer to call this condition fatigue, though whether it differs in kind or only in degree from true surgical shock, I cannot say.

The operating table and the patient's position on the table are other matters about which something should be said. Is there any reason why the operating table should be so uncomfortable? Why not have pads on it thick enough to take off some of the board-like feeling and which will, to a certain extent, prevent the radiation of heat from the patient's body? In most hospitals they put a small pad under the lumbar curve of the spine so that when muscular relaxation comes on, this lumbar curve is maintained and there is less strain on the back. Placing a pillow under the knees is of almost as much importance in preventing the post-operative backache, and has the advantage that it promotes relaxation of the abdominal muscles, thus giving the surgeon more room in abdominal work. Let me say one word about the Trendelenburg position. As it is usually carried out, the legs are flexed at the knees. This in itself puts a marked strain on the abdominal muscles, requiring a much deeper anaesthesia to give the required muscular relaxation. It also puts an added strain on the back and is a contributing factor to backache in these cases. I believe that it is very much better to use well padded shoulder pieces and keep the legs out straight, even at a slight inconvenience to the surgeon. If you have never laid on a table in the Trendelenburg position, with the legs down, I think you will be quite surprised at the amount of muscular tension this position gives. One should avoid whenever possible any position placing the muscles in strain while under an anaesthetic as we do while conscious.

As before stated, the anaesthesia should be as light as possible. Certain unnecessary factors in operative technic make it necessary at times to carry the patient along in a deeper stage of anaesthesia than is desirable. Rough handling of wounds and of the abdominal organs makes it necessary to have a much deeper anaesthesia than careful handling would require. While I am strongly in favor of rapid operating, I feel sure that it is rarely, if ever, necessary to be rough. This rough handling not only requires a deeper anaesthesia, but even when the anaesthesia is deep enough to maintain muscular relaxation the amount of surgical shock is markedly increased. In certain regions and in certain procedures it is particularly desirable to be gentle. Any traction on the intestines or stomach should be particularly gentle. I have seen an abdominal retractor put into a wound and given a jerk in retracting the muscles and peritoneum that caused an immediate spasm of the muscles and an

amount of shock that was almost unbelievable. The same thing may occur if a loop of intestines is pulled roughly out through a small wound. In this connection let me command the self-retaining retractor, which gives retraction without the intermittent pulls and jerks, each one of which acts as a direct stimulus to the contraction of the muscles pulled upon. It is not cutting that causes shock, but pulling and other manipulation. One should be as careful to handle tissues gently under a general anaesthetic as one is under local anaesthesia, if the best results are to be obtained. I have but one word more to say about technic. Surgery is done primarily for the benefit of the patient. When the patient is ready to be prepared the attendants should be ready to do the preparation, and the surgeon should be ready to commence the operation as soon as the patient is deeply enough anaesthetized to allow it.

Post-operative care is another matter for consideration. Fortunately there have been great advances in the last few years, and some of the absurdities of the older post-operative treatment have now become obsolete, such, for instance, as withholding water. If there is any one time when a patient needs water it is after operation. He needs fluid to make up for loss by bleeding and by perspiration. The fluid taken also dilutes toxic substances absorbed from the intestines so that they are eliminated with less irritation by the kidneys. I believe that there is less nausea and vomiting where water is given. The quantity of fluid vomited may be greater, but the vomiting is of shorter duration and the straining is less. Whenever vomiting persists acidosis should be suspected and prompt measures for combating this condition should be instituted. It is much better to prevent acidosis by proper diet before operation than to cure it after operation, but in cases where proper diet cannot be given before operation we can usually relieve the condition quite promptly afterwards. Irrigation of the colon with sodium bicarbonate water (3 teaspoonsful of sodium bicarbonate to 2 quarts of warm water) followed by a nutrient enema of 5% dextrose solution will usually relieve the condition quite promptly. Feeding a patient broths just before and just after operation is one of the absurdities that we will see entirely disappear within the next few years. They have almost no nutrient value, they throw considerable work upon the kidneys, and they do not greatly relieve hunger. Why should we give them at all? The only possible excuse is that they do not leave any residue in the intestines. Carbohydrates should be given, and when they cannot be given by mouth in sufficiently large doses they should be given by rectum.

Let us again consider the question of backache. Proper position on the table is not always enough to prevent this, and it is well to be sure that the back is not in a position of strain when the patient is returned from the operating room

to the bed. A pillow under the knees helps. Frequent changing of the patient's position is also of assistance.

As you see, this paper makes no pretense of being exhaustive. It is intended to call attention to certain neglected procedures and to promote discussion of our present methods, which it is hoped will be for the best interests of our patients.

EPISIOTOMY.

BY JOHN T. WILLIAMS, M.D., BOSTON,

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The purpose of this paper is to renew attention to a little-used procedure of definite value in certain obstetric cases. Episiotomy was first suggested by Ould¹ in 1742, and again by Michaelis² in 1810, but received little attention until about 1885, when the operation was taken up by Credé³ Manton,⁴ and others.

It was at first used to substitute a clean incised wound for the lacerations of the perineum. But as improvement in the after-care made union after a primary perineorrhaphy possible, the operation fell into disuse. Episiotomy today has one indication, namely, the prevention of complete tears of the perineum.

While with improved obstetric technic complete lacerations of the perineum are less common than formerly, there are still occasional cases in which these are unavoidable except by the increase of room afforded by section of the soft parts in a lateral direction. According to Williams⁵ a large part of all complete tears are the result of contractions of the inferior strait of the pelvis. To this must be added the rigid perineum of the late primigravida, the short perineum where the distance from the fourchette to the anus is very short, unusual size of the fetal head, the aftercoming head in breech presentations and face presentations delivered as such (Edgar⁶).

It is desirable for good approximation that the incision should be made before the perineum starts to tear. Practically it will be often necessary to make use of this procedure after laceration has commenced. In this event the incision should be made from the edge of the tear rather than from the original margin of the vulva.

ANATOMY.

The soft parts of the vaginal outlet may be divided into two parts:

1. The levator ani.
2. The small perineal muscles and the fibrous tissue and fasciae making up the perineal body.

The levator ani, or rather that part of it which Savage⁷ has named the pubo-coccygeus, arises from the posterior surface of the os pubis and extends backward about the vagina on either side to be inserted into the tip of the coccyx and the fibrous body of the perineum. This muscle can be palpated about one inch inside the introitus vaginae, and should not be

The perineum proper consists of two small muscles, the sphincter vaginae and transversus perinei, which, with some fibres from the levators, blend in a mass of fibrous tissue known as the perineal body, which is connected with the lower borders of the rami of the pubis and ischium by several indistinct fascial planes, analogous to the superficial perineal fascia and triangular ligament in the male. The incision should divide these parts.

TECHNIC.

The incision should be made at an angle of about 45° with the median line of the perineum, and not at a right angle, in order to avoid wounding the venous plexus of the labium and to give the greatest room for extension. It is most easily performed with sharp, long-bladed, blunt-pointed scissors.

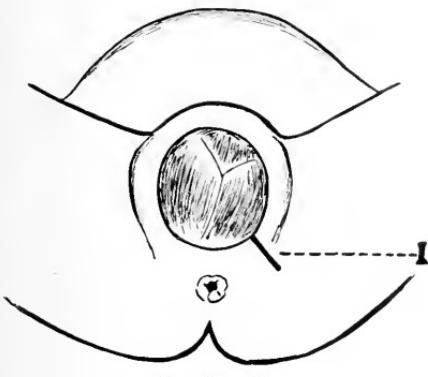
Jewett⁸ does the operation bilaterally. Usually, however, it will be necessary to incise only one side. Waldstein⁹ makes a median incision half way through the perineal body, and then extends the incision at right angles on either side. The repair after such an incision is, however, extremely complicated.

The suture of the episiotomy incision is rather difficult, and involves suture of the vaginal and perineal aspects of the incision with interrupted sutures of catgut and silkworm gut respectively. Placing the stitch first, which embraces the junction of the skin and vaginal mucous membrane, greatly facilitates accurate approximation.

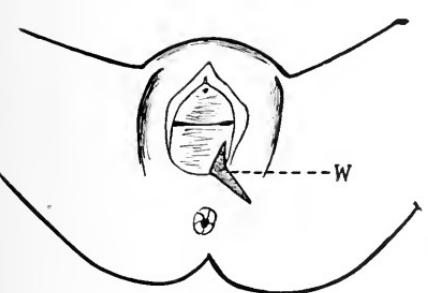
The after care is the same as that of primary perineorrhaphy. A slight experience with the operation will convince one of the advantage of performing episiotomy over allowing the perineum to tear into the rectum. The writer has done episiotomy in a number of cases from which he has selected two as illustrative of the whole group.

CASE 1. Mrs. L., a muscular primipara of 25, after a tedious labor of 20 hours was delivered by forceps. The perineum was extremely rigid and undilatable. Realizing that a tear through the sphincter would otherwise be inevitable, the soft parts were divided to the left for a distance of one inch. Delivery of a living 7 lb. baby was completed without further damage to the soft parts. The episiotomy wound was sutured and united by first intention. Four years later the patient was delivered normally of a 7½ lb. baby. Episiotomy was not performed because the labor had proceeded so rapidly that there was not time to fully anesthetize the patient, and a tear into the sphincter resulted, which fortunately, however, united by first intention.

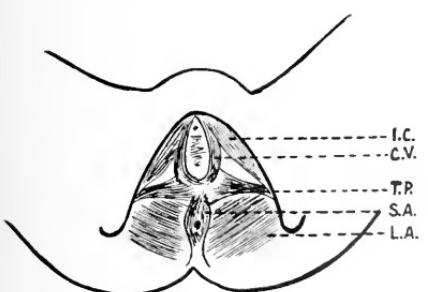
CASE 2. Mrs. S., a large, well-formed primigravida of 24, was delivered by low forceps after a sixteen-hour labor. In spite of the greatest care the perineum started to tear, and realizing that extension through the sphincter was inevitable, the



The incision (I).



The wound (W).



The anatomy.

I.C. ischio cavernosus.
C.V. constrictor vaginae.
T.P. transversus perinei.

S.A. sphincter ani.
L.A. levator ani.

cut in performing episiotomy. Schuchardt's incision, which is sometimes made as a preliminary to vaginal hysterectomy to allow a wider access to the vagina, does divide this muscle.

soft parts were divided to the left of the perineum. Delivery of an 11½ lb. baby was then accomplished without injury to the sphincter. Healing of the episiotomy incision was complicated by suppuration, resulting in partial breaking down of the wound. This, however, gave no loss of support, and the breaking down of a complete perineal suture, which would have happened just as surely, would have meant a period of fecal incontinence, followed by the discomforts and difficulties of a secondary operation. Sixteen months later she was delivered normally of a baby 2½ lbs. smaller than the first, without further laceration.

CONCLUSIONS.

1. Episiotomy is a procedure of definite value.
2. Properly used, it should practically eliminate complete lacerations of the perineum from gynecology.
3. It should not be performed except to prevent a complete tear, because incomplete perineal tears heal as well as the episiotomy wound and are less difficult to suture.
4. Complete lacerations of the perineum are especially to be feared in:
 - (a) Contractions of the inferior strait.
 - (b) Rigid perineum, as in late primigravidae.
 - (c) Short perineum.
 - (d) Unusual size of fetal head.
 - (e) Aftercoming head in breech presentation.
 - (f) Face presentations.

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 - ⁴ Manton: *Amer. Jour. Obst.*, 1885, xviii, 225.
 - ⁵ Williams: *Surgery, Gyn., Obst.*, 1909, viii, 619.
 - ⁶ Edgar: *Practice of Obstetrics*, 1907, p. 909.
 - ⁷ Savage: *On the Female Pelvic Organs*, London, 1882, pp. 3, 5.
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WANTED—A FAD!

BY ROBERT T. EDES, M.D., READING, MASS.

THIS "ad," among many others in the columns of a paper which I had supposed to have as little occasion to feel such a want in this, its home district, as any other known to modern civilization, a region or soil producing as luxuriant a crop of such unhealthy vegetation to the square acre of "witch grass," "artemisia," "ambrosia," or other weeds under names very far in excess of their merit, struck me as amusing at the time, but later more seriously in the form of a short-notice call from the secretary,

This "ad" brought out some very excellent advice, as I ascertained from subsequent numbers of the paper, but it was under false pretences.

Why should any sensible person ask his fellow reader to tell him what "trivial fancy" to adopt or what "imperfectly understood matter" he had better "pursue with more zeal than reason"? I am quoting these definitions from the "Century Dictionary." You will not find the word in the "Webster" as late as 1873, although "fiddle faddle" is there on authority as old as the *Spectator*. The most zealous fadist would not welcome suggestions under this definition.

What this enquirer wanted was not a "fad" at all. He wanted, or at any rate deserved to get, a "hobby." He might have got many times more than enough value to pay the expense of the advertisement.

There is not much to be said in defence of the mere fad. In its earlier growth, until it attains the greater dignity, it may be as harmless as tiddly-winks or eat's cradle, less dangerous than "bridge," and as useful as the knitting of pretty woolens for the unborn babe. It may supply a long-felt want,—a cerebral vacancy.

A retired adjutant of the United States Army during the Civil War once exhibited to me with some pride his collection of postage stamps, among which one of the specials was an imperfect one of, I believe, a Central American republic. It might have been this fad, as well as his sense of official propriety which headed him off from publishing a book of "reminiscences," which would have been far from being as harmless either to himself or to many others as tiddly-winks.

A nervous young lady once complained to me, while talking over her plans for the coming season, as if the choice of a career were freely open to her, "I'm going in for art this winter. I tried charity last winter, and it didn't work." Neither worked very well for the poor girl, though her charity did but little harm and her art was equally innocent. Whether her "nervousness" had anything to do with a hypertrophied spleen, from which she had recovered, or to the well-marked typical ease of exophthalmic goiter which afterward developed, I cannot say; it is not impossible that there may have been some remote connection with the latter.

But the sanely developed side occupation, the by-product of the work by which one earns,—or tries to earn,—his daily bread, the amusement, the relief from wearing monotony of toil, which gives no mental stimulus, but allows no relaxation of attention; the hobby, changing the perspective and giving the worker a different outlook at life, is something much more worthy our attention.

The hobby may indeed outgrow itself, and become the serious work, just as in manufactures it is sometimes the by-product which gives the profit. A large part of literature teems with ex-

amples taken from all walks of life, the professions, the arts, trades, and handicrafts or even the leisure which might have gone to mere amusement but has become a willing sacrifice to more congenial work. But these examples are taken to show that the plough horse can keep on doing his good work, none the worse for the hobby frisking alongside. Whether the relief asked for or given be philosophy, or philanthropy or literature,—read or made,—or a handicraft demanding skill, or the pursuit of science or a simple game, it should be followed as a hobby to be ridden carefully or mercifully. “Whatever thy hand findeth to do, do it with thy might,” is a precept to be accepted with discretion, according to one’s strength, and not by the blind following of the strenuous worker, the exceptional man or woman, whom nothing can tire. He is much more rare than his would-be imitators. He is a dangerous guide. It is “thy” might after all and not the might of the “don’t worry” books.

There is such a condition as “neurasthenia,” however much that misused word has been made the cover of foolish and ineffectual strain or, on the other hand, of incipient mental disease, or of mere indolence. But it is not so much the man of hobbies upon whom it comes as upon the man, the woman, driven by need or by conscience, to wearing overwork in a single direction or a more wearing responsibility, who cannot give herself the relief of the hobby, or even of the fad.

A distinguished educator in a discussion with a leader of labor (“*Labor*” in the official sense) said, in one of those lapses which even so clear a thinker and speaker as he is liable to make sooner or later, that the “joy of the labor” is a part of its compensation, neglecting the difference between the direction of a great educational institution, the upbuilding of which had been his life work, and on the other hand the dropping for hours, months and years into a machine of bits of metal to turn them out just alike; or the planning of a great business compared with the shoveling for hours of the same sized bars through the same rollers, for the same wages—probably considered inadequate—or even, to come nearer, the leading of zealous students in fruitful research, and reading the examination papers of the dull average not good enough to be interesting nor absurd enough to be amusing.

President Eliot was right from his point of view; but the labor leader was unconvinced from his, *as he had a right to be*. He ought not to be content with his kind of work. He should have a hobby. I do not remember who he was, but perhaps his employment as a representative spokesman rather than an actual daily worker may have acted as his hobby and been the needed relief for him. If otherwise, a literary hobby, say the study of history rather than the reading of political economy or one-sided sociology; or better still a thorough out-door

hobby in which he should take an active part and not be contented with seeing others play, would tend to a healthy mind. For the brain-fagged, the two-sided outdoor hobby is the ideal, in which one learns something as well as makes something, puts the commonplace donkey-rider in the same class as the discoverer and the doer.

Who is the brain-fagged? A young girl in the hospital told me that her doctor had told her her “brain was all worn out.” Further inquiry disclosed that her occupation had been pasting labels onto shoes.

The man who needs to “take no thought for the morrow, what he shall eat or what he shall drink, or wherewithal he shall be clothed,” if he have no ambition to rise further in the same direction, must have a hobby for the salvation of his mind, his heart and his happiness. He may make a hobby of anything, even of the essentials of life. Even so the bonvivant, the epicure, is better than the mere gormandizer or the drunkard. The dandy is a thing of greater joy to the public, even if not very important, than a careless sloven. If it is salvation to the man himself to have almost any reasonable hobby, it is an enduring joy to him and great profit to the world, that he should have one adapted to his talents and of altruistic direction. Fortunate for our country that the idle man is not the type held up for admiration before any but a very small fraction of the people, and that usefulness to others does not detract from the esteem in which the busy man is held.

But for the brain drudger, the accountant who feels when he has got to the end of his work day, that he cannot look at another figure, the typewriter whose machine has begun to dance over the table, the selector of colors to gratify an endless procession of different tastes, where each knows less than her predecessor, and so on down to the merest shovel of gravel, needs a change from the day’s work. In a vast proportion of cases this is merely amusement and nothing more. All *work*, be it little or great, is as nearly as possible stopped. Of course it is only the favored few who *can* have this, but it is not necessary, perhaps not even desirable, that every grade of mental activity should always be reduced to zero.

Biologic science naturally, almost inevitably, appeals most strongly to the medical practitioner, even in departments considerably removed from his daily work. He cannot help thinking of eugenics, for instance, and may make the most important contribution to that old—old but newly-named—branch, which he has constantly before him in every shape of diagnosis, pathology and therapeutics. If his daily practice enables him to straighten out some few threads of generalization, he is fortunate. The hereditary family practitioner has the best of opportunity among his human subjects and is the best man to look at this branch from all sides. Who but he can follow out the “dominant” and “recess-

sive" influences in the Mendelian maze, now left so largely to the novelist?

But if he follows beyond his own species, his range becomes wider and more generalized—as in botany and gardening. On the humbler side also it has its uses. I remember a good many years ago hearing a most philosophic practical surgeon, in sketching an ideal medical course, place a very high estimate on botany among the elementary studies; but for what reason, think you? Because it gave the student useful practical knowledge of *materia medica*. I felt for years later that our honored colleague was making a mistake, in these days when the druggist is the man to *know* about drugs and can get his recreation elsewhere. Even he, as a rule, knows none too much about them beyond the name printed on the bottle. I was gratified to find myself justified in placing a more worthy estimate upon this study when I found these phrases in an appreciation of Sir William Gowers, one of the foremost of English neurologists, as follows:—

"The process of identification of plants by the descriptions, the training it involves in accurate observation and in giving the proper relative weight to different features is essentially the same as that which is needed in the diagnosis of disease. No subject affords mental training quite so effective for the practitioner's work." This remark was from a man who had taken shorthand notes on more than twenty thousand cases of nervous diseases.

How many thousands of physicians could we reckon, without going far into the past, who have been adepts in botany, who beginning perhaps in the *materia medica* point of view in their own gardens have derived lessons of biology of the higher interests to mankind. And we needn't go far to find botany linked with the widest, most far-reaching generalizations through the names of Agassiz, Gray, and Darwin. It is interesting to speculate on the reactions between Dr. Jacob Bigelow's "Florula Bostoniensis," his later works on Medical Botany, and his views in still later life on Nature in Disease and a more rational and scientific treatment.

As he gathered his specimens driving along the muddy roads "within four or five miles of Boston" more than a hundred years ago, did the thought enter his mind, "Let the children go without herb teas for a while. They will probably get well just as quick."

Such doubts as these seem also to have entered into the views of Dr. Alfred Stillé between the publication of his elaborate work on *Materia Medica and Therapeutics*, and that of the American Dispensatory.

Dr. H. C. Wood became a member of the National Academy of Science, not on account of his learned work on Therapeutics, but for his earlier knowledge of mycology.

Several of the official reports on the natural history of Massachusetts were prepared by active practitioners of medicine; that on Fish by Dr. Storer, professor of midwifery, that on Shells by Dr. A. A. Gould, one of the physicians of the Massachusetts General Hospital. I am not sure that Dr. Thaddeus William Harris, who prepared a most valuable work on "Insects Injurious to Vegetation," was a practitioner, although he was a graduate in medicine. He was for many years librarian of Harvard College.

George B. Emerson, author of the report on Forest Trees was for many years the leader of a well-known girls' school in Boston.

John E. Holbrook, who published an illustrated book on Herpetology, which was for many years the authority on the subject in the United States, was a professor of anatomy in the medical college of South Carolina.

Military glory has attracted more than one practitioner away from too strict devotion to business. Let us mention here the name of Major-General Dr. Appleton Howe of South Weymouth, of whom Dr. Jarvis remarked, "When he has on his uniform and draws his sword we do not dread him in the least, but when he takes up his lancet then we are afraid of him."

There may be one or two of us oldsters who have seen the little red tails of our beloved member, Lieutenant Col. Dr. C. C. Holmes' short jacket flopping briskly up and down against his plump posterior as he led the Cadets at double quick round the common. When he was one of Governor Andrews' trusted military advisors he had to say that he had had great numbers of requests for his interest in getting commissions for boys, none of whom had had anything approaching the experience which the business men are now getting at Plattsburg,—the successful ones got it later,—and he used to write letters telling the governor what fine fellows they were and how justly proud their fathers were of them; but it was understood that unless they ended with the phrase, "And I advise you to take him," they went for nothing. It is pleasant to think that his sacrifices to Mars never lost him many patients from Lucina.

And we must not forget that the ranking officer of the United States army was once an intern of the Boston City Hospital, entered the army through the medical corps, and that both his medical and military knowledge have been of the highest service.

Sir Robert Christison must have been a great ornament and delight in the profession at Edinburgh, where he lent dignity and learning to more than one professorship, was the author of a treatise on "Materia Medica and Toxicology," and another on "Bright's Disease," an experimenter in his own person on numerous drugs, and an expert in court so exact and so clear that

he habitually escaped the heckling to which other less careful men have to submit. He was an athlete of renown through his long life, as a walker, a sprinter, and mountain climber, while his stately figure and flowing white locks made him a marked man as he stood on parade at the head of his company in the University Battalion at the age of seventy-seven.

Aquatic sports have attracted many of our profession. New England's sea coast has been the playground of some of us, as is befitting in those of Cape Cod lineage. I have myself taken many a rest as opportunity has offered, both with oars and sails, from the Charles to the Mississippi. The good which comes from rowing, both physically and mentally, cannot be half so graphically set forth by anyone else as by Dr. Holmes, and I will quote a little more at length from his description of his voyages of discovery over the flats of the Charles River when it was a river, long before it had become a fresh water basin. The wherry in which he voyaged I used to see in the cellar of the old, not the most recent "old," but the old "old" medical school in North Grove Street, as I passed through it to the dissecting room.

"Here you are, then, afloat with a body a rod and a half long, with arms, or wings, as you may choose to call them, stretching more than twenty feet from tip to tip; every volition of yours extending as perfectly into them as if your spinal cord ran down the centre strip of your boat, and the nerves of your arms tingled as far as the broad blades of your oars,—oars of spruce, balanced, leathered and ringed under your own special direction. This, in sober earnest, is the nearest approach to flying that man has ever made or perhaps ever will make.* As the hawk sails without flapping his pinions, so you drift with the tide when you will, in the most luxurious form of locomotion indulged to an embodied spirit. But if your blood wants rousing, turn round that stake in the river, which you see a mile from here; and when you come in in sixteen minutes (if you do, for we are old boys, and not champion scullers, you remember), then say if you begin to feel a little warmed up or not! You can row easily and gently all day, and you can row yourself blind and black in the face in ten minutes, just as you like. It has been long agreed that there is no way in which a man can accomplish so much labor with his muscles as in rowing. It is in the boat, then, that man finds the largest extension of his volitional and muscular existence; and yet he may tax both of them so slightly, in that most deliciou[s] of exercises, that he shall

mentally write his sermon, or his poem, or recall the remarks he has made in company and put them in form for the public, as well as in his easy-chair.

"I dare not publicly name the rare joys, the infinite delights, that intoxicate me on some sweet June morning, when the river and bay are smooth as a sheet of beryl-green silk, and I run along ripping it up with my knife-edged shell of a boat, the rent closing after me like those wounds of angels which Milton tells of, but the seam still shining for many a long rood behind me. To lie still over the flats, where the waters are shallow, and see the crabs crawling and the seulpins gliding busily and silently beneath the boat: to rustle in through the long marsh grass that leads up some tranquil creek; to take shelter from the sunbeams under one of the thousand-footed bridges, and look down its interminable colonnades, crusted with green and oozy growths, studded with minute barnacles, and belted with rings of dark mussels, while overhead streams and thunders that other river whose every wave is a human soul flowing to eternity as the river below flows to the ocean,—lying there moored unseen, in loneliness so profound that the columns of Tadmor in the Desert could not seem more remote from life, the cool breeze on one's forehead, the stream whispering against the half-sunken pillars.—why should I tell of these things? That I should live to see my beloved haunts invaded and the waves blackened with boats as with a swarm of water-beetles? What a city of idiots we must be not to have covered this glorious bay with gondolas and wherries, as we have just learned to cover the ice in winter with skaters!"

Our old teacher of anatomy and of social philosophy speaks of some other forms of exercise with modified respect, but his summing up, "I am satisfied that such a set of black-coated, stiff-jointed, soft-muscled, paste-complexioned youth as we can boast in our Atlantic cities never before sprang from loins of Anglo-Saxon lineage," reads very queerly in the light of the "athletic pages" of our daily press. The "aerial swimming," which he speaks of as what "some fancy is to be a conquest of the future," he came within but a few years of seeing.

Is it possible that the lure of salt water had any share with philanthropy in making Grenfell the guardian angel of Labrador?

Probably a very much larger proportion of physicians have made side excursions into more or less unprofessional literature than into any other so easily accessible.

The greatest of the poets, whom even the most liberal construction will allow us to reckon as a disciple of Aesculapius, was Schiller, who was indeed rather a forced recruit, for he was not very far beyond his boyhood when he was driven

* "The boat flies like a sea-bird with its long, narrow, outstretched pinions; the bicycle rider, like feathered Mercury, with his wings on his feet. There seems to be nothing left to perfect in the way of human locomotion but aerial swimming, which some fancy is to be a conquest of the future."

Will the chug-chug boat drive rowing to become a mere specialty among the higher universities?

from his post of ill-paid army surgeon at the age of twenty-three, to rise rapidly to the first rank in literature, long before he could have suffered from the monotony of medical life.

Poets of a lesser rank on both sides of the water could undoubtedly be reckoned in large numbers by those more learned than myself.

Smollett, who for many years threw only moderately as a practitioner, held for a time the position of the first of English novelists.

Akenside, who is described in the Encyclopedia as an "acute and learned physician," and who was made, for political reasons, physician to the queen, and his political works included in an edition of the British poets, had an unsympathetic character and a sarcastic style which prevented the success to which his learning and ability entitled him.

On this side of the water one has but to mention the names of Holmes and of Mitchell as worthy the highest honors in both professions. It is said that Mitchell asked Holmes' advice,—being much the younger man,—as to adopting literature as a profession and was advised against it, which has been a great gain to neuropathology, certainly with no corresponding drawback on the other side of his work. The work of Mitchell has been of the best, but he will probably be remembered, even among the novel readers of his own profession, for his work on "Injuries to Nerves" and his "Fat and Blood and How to Make Them," more than for his novels.

I do not think Holmes was ever more than a moderately successful practitioner, but soon became, outside of his specialty, almost exclusively a literary man, never, however, losing his interest in medical science. It was said that he himself claimed more credit for his work on the contagiousness of puerperal fever than for anything else he had done.

In the broad field of letters, where he so frequently and delightfully appeared as physician, essayist, social critic, and philosopher, where pseudo-science was ruthlessly punctured, medieval theology and medieval medicine good-naturedly satirized, and where too confident youthful enthusiasm was good-humoredly rebuked, he was imitable. If he had a weakness on this field it was in his inability to resist the temptation to sacrifice scientific accuracy to an epigram. I was fortunate enough to hear that address to the Massachusetts Medical Society which deeply wounded some of his less progressive brethren, but which has been incorporated into so much of present-day practice; a recent re-reading only increases my respect for its sound sense and scientific accuracy as well as its rhetorical charm.

NOTES OF A CONFERENCE ON THE MEDICAL AND SOCIAL ASPECTS OF SYPHILIS OF THE NERVOUS SYSTEM.

HELD AT THE PSYCHOPATHIC HOSPITAL,
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(Continued from page 922.)

V.

MENTAL FEATURES OF CONGENITAL SYPHILITICS.*

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II. THE MENTAL PHENOMENA IN SIXTY CONGENITAL SYPHILITIC CHILDREN COMPARED WITH SIXTY NON-SYPHILITIC CHILDREN.

III. THE MENTAL PHENOMENA IN FAMILIES WITH CONGENITAL SYPHILITIC CHILDREN.

IV. CONCLUSIONS.

i.

THE purpose of this paper is to draw attention to the pathological mental phenomena in congenital syphilis. For a long time there has been a more or less generally recognized group of mental conditions that were ascribable to this factor in heredity, but of late years there has been a more specific recognition both of the disease and its immediate connections. Very many of these abnormal mental conditions are acquired early and before the brain has completed its development. Others are of a less tangible nature and have not been definitely associated with syphilis. If one considers the four main types of abnormal states; namely, psychoses, feeble-mindedness, delinquency, psychoneuroses, one can trace something more than the former indefinite associations. Many of these conditions come in middle life and are ascribable to some endogenous factor. The grounds on which feeble-mindedness is related to syphilis are many and have for a long time been recognized. Delinquency can be ascribed to syphilis only as the two

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are connected with some kind of emotional instability or some psychopathic inferiority. The percentage of delinquents who are actually feeble-minded is probably around 15 or 20, but outside of this there must be a larger group of 30 or 40% which is connected somehow with constitutional psychopathic inferiority. At the most, it would be extravagant to say that more than 30% of the delinquents could be connected with congenital syphilis. In regard to the endogenous psychoses and the psychoneuroses, there is good ground for definite causal relation. Mott has pointed out that it is the tendency of such a psychosis as dementia praecox to die out of the race, as its earlier appearance in successive generations causes the stock to cease to propagate. But as this psychosis seems to be on the increase, there must be some extraneous factor producing it anew. This factor, he suggests, may be syphilis. Meggendorf comes to a similar conclusion after a somewhat protracted study. Freud states that in more than one-half of the severe cases of hysteria, compulsion neuroses, etc., which he had treated by psychotherapy, he positively succeeded in demonstrating that the fathers had gone through an attack of syphilis before marriage; they had either suffered from tabes or paresis or there was a general history of lues. He expressly adds that the children who were later neurotic showed absolutely no signs of hereditary lues, so that the abnormal sexual constitution was to be considered as the last offshoot of a luetic heredity.

There is a similar truth in the overstatement of Dr. Thomas at the Alameda County Medical Association in December, 1912. He affirmed the clinical evidence of the stigmata of syphilis to the third, fourth, and even later generations; claimed that neurasthenia is absolutely caused by syphilis, being a distinct physical disease of the brain and cord; and stated that non-syphilitic alcoholic parents do not beget the idiotic, defective children, but rather the alcoholic syphilitic parents do.

Besides these speculations which have become more definite in our day, there is a certain number of conditions in which the effect of the inherited syphilitic taint can not be doubted. Our interest in this paper will lie in the mental development of these congenital syphilites. First, it is necessary in each case to be sure of the diagnosis, and in the past this has been done mostly on the basis of observation. It is unnecessary to review these various stigmata on which one can make a positive diagnosis. Before the laboratory tests, this was the only means beside the family history of making a diagnosis, and consequently these stigmata have been carefully denoted. When certain of the most characteristic signs are present, there can be no reasonable doubt as to the existence of congenital syphilis. Thus the presence of the Hutchinsonian triad is sufficient for diagnostic purposes. The second method of diagnosis was from a fam-

ily history of syphilis, numerous miscarriages, and numerous still-births, but the literature affords us plenty of evidence that this is not sufficient ground. The third method, namely the Wassermann reaction and the examination of the cerebrospinal fluid, is more definite and accurate, and has added much to our diagnostic ability. On the basis of these three methods of examination, viz: the laboratory tests, the physical stigmata, and the positive family history, it is possible to make the following division in cases of congenital syphilis:

Group 1.

- a. Those with a positive spinal fluid which would include such types as juvenile general paresis, juvenile tabes dorsalis, epilepsy and cerebrospinal syphilis.
- b. Those with a negative spinal fluid including such types as optic atrophy (optic tabes), epilepsy and hydrocephalus.

Group 2.

- a. Those in which the blood is positive and the physical stigmata are present.
- b. Those in which the blood is positive and the physical stigmata are absent.
- c. Those in which the blood is negative but the physical stigmata are present and the family history is positive.
- d. Those in which the blood is negative and the physical stigmata are absent but the family history is positive.

One could not expect to find different types of mental conditions corresponding to this grouping, but this grouping is serviceable in indicating the degree of physical and mental disturbances and allows a more definite determination than we have hitherto used in the study of a group of this disease. Different cases might be cited to show the abnormal or deteriorated mental symptom in the individuals in these groups but the variations on the mental side are too numerous to parallel the laboratory and physical determinations.

In order to ascertain how the mentality of congenital syphilites compared with non-syphilites, some 440 hospital cases were gone over and it was found there were 60 under 15 years of age who could be put down as definite congenital syphilites. Along with these, 60 non-syphilitic cases were taken for the sake of comparison. In every case the laboratory tests had been made, a male was matched with a male, a Russian with a Russian, and one of 10 years with another of 10 years, and in the whole series of 120 there were only three instances where it was impossible to match for age, sex and nationality. There were nearly a dozen instances in which a choice between two was possible, but in every such case the latest was taken, since in these the examinations are more thoroughgoing. The 60 congenital syphilites

were found to group as follows, and it was pure chance that they turned out to be 30 males and 30 females:

GROUPING OF 60 CONGENITAL SYPHILITICS BASED ON
LABORATORY FINDINGS

	M	F
I. Fluid		
a. Positive	1	1
b. Negative with Phys. Stig.		3
II. Serum	5	10
a. Positive	13	13
b. Positive with Phys. Stig.	9	0
c. Negative with Phys. Stig.	2	3
d. Negative with Family History		
	30	30

ii.

The comparative mentality of these 60 syphilites with 60 non-syphilites is shown in the following summarized statistics in regard to *development, diagnoses, defects in sense organs, defects in mental processes, and delinquencies*.

In regard to *development*, it seemed best to take the Binet age, since these cases go back nearly three years and in every case the Binet had been done, whereas the Point Scale had been applied only in the last year. The average age of the syphilites and non-syphilites was, of course, the same, namely, 10.3 years. The average Binet age of the syphilites was 6.2 and of the non-syphilites 7, so that the deficiency among the former was 4.1 years as compared with 3.3. Next, the school grades were considered and among the syphilites there were 36 cases of backwardness in school as compared with 24 cases in the non-syphilites.

The *diagnoses* were considered either *feeble-minded*, which was taken to be a mentality below 12 years, or at least two years below the actual age, along with indications of feeble-mindedness on family, social, economic and moral lines; or *retarded*, which meant not sufficient to be called feeble-minded yet behind the actual age, and of these cases some eventually become feeble-minded; or *defective*, which meant neither of the above but a subject having some special defects in the larger mental processes which came to the front in the examination; or *normal*; or *supernormal*. The results of the 120 individuals differentiated on these grounds are as follows:

	Syphilites	Non-Syphilites
Feeble-minded	29	25
Retarded	19	12
Defective	4	7
Normal	6	14
Supernormal	2	2
	60	60

Next, the *defects* in the sense-organs of vision and hearing and the development of speech were considered, since any handicap in these manifests itself in the mental development. In re-

gard to speech there were nine syphilites compared with none in the non-syphilites. The fact of this disproportion and the preponderance of speech defects over vision and hearing give some support to a point recently put forth by Dr. Walter B. Swift in the Pediatric Society meeting for April, to the effect that there was a distinctive voice sign in congenital syphilis. This he characterized as having a certain roughness and harshness, and a certain inability to go from a low to a high pitch, and return. He emphasized the characteristics and this examination shows the frequency of defects in speech in congenital syphilites. A tabular view of the defects found in the 120 children is as follows:

The Three Types	Syphilites	Non-Syphilites
Speech	9	0
Vision	5	2
Hearing	3	3

Plural Defects in One Individual

None	43	55
One Only	11	3
Two	2	2

From this table one might say that in the congenital syphilitic individuals there are more apt to be plural defects.

For the sake of comparing the *defects* in the mental processes these were divided into the four groups of receptivity, imagination, affectivity and thought. Receptivity was taken to include perception, elementary association, range of observation and discrimination. Imagination was taken to cover memory proper, analytical ability, learning ability, planning ability and imagination. Affectivity was taken to cover suggestibility, volition, concentrated attention and emotional instability. Thought was taken to cover reasoning, judgment, comprehension and apperception. These results are represented below:

DEFECTS IN MENTAL PROCESSES.

The Four Types	Syphilites	Non-Syphilites
Receptivity	25	16
Imagination	22	19
Affectivity	24	29
Thought	19	17

Plural Defects in One Individual

None	12	12
One Only	15	21
Two	18	14
Three	9	10
Four	5	2
Five	1	1
	60	60

The results indicate that in the mental processes as in the special organs just considered, in the syphilites there are more apt to be plural defects in one individual.

The *delinquencies* were treated under three groups, individual, property and society. Individual delinquencies were considered to be those of truancy, stubbornness, incorrigibility,

lying and sex. The property delinquencies were considered to be larceny, destruction, setting fires and breaking and entering. The society delinquencies were considered to be disorderly conduct, contentiousness, fighting, carrying concealed weapons, assault with intent to do bodily harm and minor offences. The results of this treatment are represented in the following table:

DELINQUENCIES.

The Three Types	Syphilitics	Non-Syphilitics
Individual	32	21
Property	13	15
Society	3	3
Plural Delinquencies in One Individual.		
None	24	32
One Only	18	18
Two	8	3
Three	7	4
Four	3	2
Five	0	1
	—	—
	60	60

The same inference is apparent in the delinquencies as in the other defects, namely that the syphilitics are more apt to manifest plural delinquencies in one individual than are non-syphilitics.

If one looked over these results to note the instances where the syphilitics were inferior, equal or superior from the mental and social point of view to the non-syphilitics, one would find that there are twenty instances of inferiority, six instances of equality and six instances where the syphilitics are more favored. In summarizing, one could rightly say that in the 120 individuals under 15 years, all of them presenting acute social problems and all standing on the same ground except for this one factor of congenital syphilis, those that come in such a group present the greater social problems.

iii.

In many cases it is possible to outline a definite family pathography in regard to congenital syphilis. The picture before and after the syphilitic invasion is generally a contrast between normal mental development and under-development with early deterioration. For the sake of emphasizing this before and after picture of the mental development four families are taken from among the records of children looked up in Section III.

In the first family the father and mother represented normal development and intelligence to all appearances. The first child is a living male of 16 who is exceptionally bright. The second is a living female of 9, who is exceptionally bright. The third is a living female of 7, reported by her school teacher as being exceptionally bright. The fourth child is a living female of 6, who came after the infection. Her mental age is that of a 3-year-old child and in

the past two years she has grown progressively worse. The neighbors say she has changed in "character, disposition and mind," and her school teacher says she is as different from what she was as "dark is from light." The fifth child was a female that died at 9 months. The sixth child is a living male of 3 with characteristic physical ailments and slight retardation in mental development. The seventh child is a living female of 1 1/2 years, and the eighth child is a living male of 3 months. These latter two appear normal as yet.

In the second family the father and mother are normal physically and of average intelligence. The first child is a female of 12, who measured on the Binet 12, and on the Point Scale 15. She is reported from school as exceptionally bright. Then there came the infection, and this was followed by one miscarriage. The third child is a female of 11, who is feeble-minded, measuring on the Binet 8 1/5, and on the Point Scale 8 3/5. This birth was followed by another miscarriage.

In the third family the father suffers from alcoholic deterioration and tuberculosis, and the mother is apparently normal. The infection in this case was followed by a female now living at 10 years of age, who is mentally two years retarded and suffers from cerebrospinal syphilis. The second child is a living female of 7, who is one year retarded in mental development. The third is a female of 5 years, one year retarded and suffering from congenital syphilis. The fourth child is a living female of 3 years, apparently normal as yet.

In the fourth family the father is 62 and suffers from gonorrhœa. The mother is 46 and has not been well since marriage. The infection was followed by a male child who died at 11 months of diphtheria. The second child was a male who died at 18 months of pneumonia and scarlet fever. The third child was a male who died at 22 years of tuberculosis. Throughout his life he suffered from convulsions. The fourth child was a male who died at 20 of pneumonia. The fifth child is a male living at 18 with juvenile general paresis and mental deterioration. The sixth child, a female, is living at 16 with cerebrospinal syphilis and mental deterioration. The seventh was a still-birth at 8 months. The eighth was a female child who died at 14 months with spinal meningitis and convulsions. This child was followed by a miscarriage at 3 months.

iv.

The results of this study can be set forth as follows:—

1. There is increasing authority for considering the endogenous psychoses and the psycho-neuroses to be the last offshoots of luetic heredity.
2. The laboratory findings afford the best

classifications of congenital syphilis and there are six possible groups on this serological basis.

3. Of children under 15 years constituting social problems, the congenital syphilitics constitute the more serious problems. Among them there are more cases of backwardness in school, there is more feeble-mindedness and retardation, there are more defects in the mental processes (with the one exception of affectivity), there are more delinquencies, there are more defects in vision, hearing, and speech. And if we consider the single individuals with one or more defects, then in the syphilitics there are more individuals with plural defects in the mental processes, there are more individuals with plural delinquencies, and there are more individuals with plural defects in the two main sense-organs and in speech.

4. In families where the syphilitic infection makes its appearance the before and after picture in the mental development of the children is clearly delineated. In two families the earlier children were exceptionally bright in school. Then there came the syphilitic invasion and the following children are feeble-minded in early youth and show a rapid deterioration of mentality. In another family the infection was followed by two children who are victims of cerebrospinal syphilis and two children who appear normal as yet, but three of the four children are retarded in mental development, two at least two years, and one one year. In another family of nine children the infection was followed by miscarriages, still-births, and early deaths until today but two of the nine children are left, and one of these is a victim of general paresis with mental deterioration and the other a victim of cerebrospinal syphilis with deterioration.

We are indebted to Dr. H. C. Solomon for the determination of the syphilitic and non-syphilitic individuals and families.

VI.

DIAGNOSTIC VALUE OF LANGE'S GOLD SOL TEST. (BASED ON 500 EXAMINATIONS OF THE SPINAL FLUID.)

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Three years have elapsed since Lange published his original communication on the colloidal gold test for cerebrospinal fluid. At this time he made a number of suggestions as to its

diagnostic value.^{2, 3} Several workers following him have confirmed many of his findings. This communication is a survey of the results obtained at the Psychopathic Hospital with this test during a little more than a year in the examination of the cerebrospinal fluids from 500 patients, a number of whom have had several punctures. One hundred and thirty-five of these fluids were reported in the BOSTON MEDICAL AND SURGICAL JOURNAL, December 10, 1914.¹³

We will not discuss the technic of the test as this will be found ably described in several of the articles,^{2, 3, 7, 8, 9, 10} the references to which are appended. It may be well, however, to call attention to some difficulties and precautions. At times it is with the utmost difficulty that a satisfactory solution is obtained. One prepares the agents as usual and yet the resulting solution is not as it should be. No reason is found for this, and after numerous tests in which no change in technic is made, a perfect solution is obtained. One must be careful in the selection of a solution, as certain solutions which look right will not give satisfactory results; that is, a solution may be too sensitive or not sensitive enough. Thus, an over-sensitive fluid will give strong reactions with fluids from apparently negative cases, and a too stable fluid will not give sufficiently strong reactions. In order to be certain of one's results, it is necessary to run controls with every new solution, using at least one known negative and one known strongly positive fluid; if this is not done one cannot feel confident of the results obtained.

Stated briefly the following diagnostic results have been claimed for the gold sol test: —

1. General paresis gives a typical reaction, the so-called "paretic" reaction.
2. Syphilitic cases give a reaction in low dilutions ranging from 1/10-1/320, called the "syphilitic zone."
3. Tabes and cerebrospinal syphilis give reactions in the syphilitic zone, but differing from the reaction given by general paresis in being weaker.
4. Tuberculous meningitis and brain tumor with inflammatory products in the fluid give reactions outside the "syphilitic zone," that is, in the higher dilutions.
5. Purulent meningitis gives a reaction differing from syphilitic meningitis.
6. The test will often give the only evidence of syphilitic involvement of the central nervous system in latent syphilis.
7. Fluids from normal patients or from patients having no inflammatory conditions of the central nervous system will give negative reactions.

The test is performed with ten dilutions of spinal fluid ranging from 1/10-1/5120 and the color change of the reagent varies from the

* Being S. B. I. Contribution whole number 127 (1915, 30).
Bibliographical Note.—The previous contribution was by J. H. Bazely and H. M. Anderson, entitled "Mental Features of Congenital Syphilis," BOSTON MEDICAL AND SURGICAL JOURNAL, Vol. clxxiii, No. 26, p. 952.

negative red through red-blue, blue-red, blue, lilac to colorless, depending on the amount of colloidal gold precipitated. These results may be plotted, using the dilutions for the abscissa and the color range for the ordinate. Or more simply, one may indicate the results by numbers, calling the negative red 0, the red-blue 1, the blue-red 2, the blue 3, the lilac 4, and the colorless 5, placing these on a horizontal, the ten divisions of which represent the ten dilutions.

Using this latter scheme, the "paretic reaction" would be represented as

5 5 5 5 4 3 1 0 0

That is to say, the reaction has gone to its full intensity in the tubes of lowest dilution, running through a number of dilutions and then disappearing. This reaction may run through a lesser or greater number of tubes, but in order to be accepted as "paretic" it must begin with its full intensity in the first tubes of the series.

The "syphilitic zone" includes the first five to six dilutions, that is the dilutions of 1/10 to 1/160 or 1/320. In tabes, cerebrospinal syphilis, etc., the reaction then should be something as follows:

1 2 4 4 2 1 0 0 0 0, or
3 3 2 1 0 0 0 0 0, or

it may show other types of reaction, the essential points being that the reaction occurs in the lower dilution but does not run to its maximum possible intensity in the first one or two tubes.

Tuberculous meningitis and brain tumors give a reaction in which the height of the curve is outside the "syphilitic zone."

0 0 0 0 0 1 3 3 1 0, or
0 0 1 2 3 4 4 3 2 0

An entirely negative reaction causes no color change throughout.

0 0 0 0 0 0 0 0 0 0

The reaction is due to the presence of abnormal albuminous material, or possibly the presence of an excessive amount of the normal. The test is based on the empirical fact that the colloidal gold may be used for qualitative albumen determinations, depending on differing reactions, according to dilutions.¹ The normal quantity and quality of cerebrospinal fluid albumen gives no reaction with the solution as used. The presence of a color change or positive reaction indicates a change in the albumen content. So in any case in which there is a variation from the normal content may be expected to give a reaction, and this reaction will depend rather on the quality of the albumen than on its quantity. Thus in the case of a purulent meningitis with enormous quantities of albumen, the reaction was but very slight and only in the higher dilutions, while in another case giving but a small excess of albumen but in a case of general paresis, the reaction was a typical paretic one. It is to be assumed then that various disease condi-

tions cause the formation of different kinds of albumens, that is, there is a different albumen in the fluid in tuberculous meningitis than in general paresis. If this is the basis of the test there is nothing *a priori* against several different diseases causing the same reaction.

It is our purpose to analyze the results of the tests of the 500 patients in the light of the above-mentioned contentions and to offer such criticisms and conclusions as seem warranted from the series. In a test of such an empirical nature this group is quite small, but as it is larger than any other we have been able to discover in the literature it may have some value. In each case here reported the diagnosis is that made after considering the various clinical symptoms and laboratory tests. In practically every instance, in addition to the gold sol test there is a blood serum Wassermann reaction, spinal fluid Wassermann reaction, cell count, Nonne-Apelt globulin test, and Mestrezat albumin test.

ANALYSIS OF RESULTS IN 500 CASES.

Group I. Clinical diagnosis. Syphilitic involvement of central nervous system, including general paresis, cerebrospinal syphilis, tabes dorsalis, juvenile cerebrospinal syphilitic disease, Erb's spinal paralysis, "paresis sine paresi."

- | | |
|-----------------------------------|-----------|
| 1. General paresis | 118 cases |
| (a) Typical "paretic curve" | 114 " |
| (b) Atypical curve | 4 " |

In three of the four atypical curves the curve was a very close approximation of the "paretic," being of that type, 4443332211. In one it differed markedly, 2223310000, resembling the "cerebrospinal syphilis" curve.

In addition it is to be noted that slight changes have been found in the form of the curve in several cases punctured at intervals. This is quite frequent in cases receiving intravenous injections of salvarsan or intradural therapy,^{10, 15} but also occurs in others.

Percentage giving typical reaction..... 96.6%
Percentage giving almost typical reaction.... 2.63%
Percentage giving atypical reaction..... 0.87%

- | | |
|------------------------------------|----------|
| 2. Cerebrospinal syphilis..... | 11 cases |
| (a) "Syphilitic zone—non-paretic". | 8-9 " |
| (b) "Paretic curve". | 1-2 " |
| (c) Negative reaction..... | 1 " |

One case which gave "syphilitic zone—non-paretic curve" on first examination gave the typical "paretic curve" on a second examination 4 months later. The "paretic curve" case gave this reaction on 4 successive fluids over a period of 3 weeks, but after several weeks' treatment with mercury presented an essentially negative fluid to the other tests and the following gold sol reaction: 0011100000. The case giving the negative gold sol reaction had other spinal fluid tests negative, but a positive blood serum Wassermann,—headache, ptosis, strabismus, diplopia.

3. Tabes dorsalis	5 cases
"Syphilitic zone"	4 "
"Paretic curve"	1 "
4. Juvenile cerebrospinal syphilitic disease	6 "
(a) "Paretic curve"	4 "
(b) "Syphilitic zone"	2 "
5. Erb's syphilitic spinal paralysis	1 "
(a) Syphilitic zone	1 "
6. "Paresis sine paresi"	4 "
(a) "Paretic curve"	3 "
(b) "Syphilitic zone"	1 "
7. Heubner's endarteritis (hemiplegia)	1 "
(a) "Syphilitic zone" (very slight reaction)	1 "

Total number of cases diagnosed syphilitic involvement of central nervous system

142

Total number showing reaction in "syphilitic zone"

141

Percentage showing reaction in "syphilitic zone"

99.29%

Group II. Cases giving paretic reaction but having negative Wassermann reactions in blood serum and spinal fluid.

Organic dementia	2
Cerebellar tumor (operation)	1
Korsakoff's psychosis	1
Unclassified (T. B. meningitis—not proved)	1
Tumor or T. B. meningitis	1
Multiple sclerosis	2
Total.....	8

Group III. Cases exclusive of syphilis of the central nervous system.

The figures at top of the columns represent the highest amount of color change, if any, produced by the fluid. Except where starred this reaction took place in the "syphilitic zone."

Diagnosis.	5	4	3	2	1	0	Total.
Dementia precoox	0	0	2	3	3	51	70
Manic depressive insanity	0	0	2	3	3	20	28
Epilepsy	0	0	3	4	9	16	
Feeble-minded	0	0	4	4	13	21	
Alcoholic hallucinosis	0	0	1	4	13	19	
Delirium tremens	0	0	0	2	4	8	14
Alcoholic pseudo paresis....	0	0	0	1	2	3	
Alcoholism-morphinism	0	0	1	4	3	11	19
Alcoholic delusional insanity	0	0	0	0	3	3	
Pathological intoxication....	0	0	0	0	1	1	
Presentile psychosis	0	0	0	1	5	7	
Senile psychosis	0	0	0	1	2	3	
Psychoneurosis	0	0	0	2	5	7	
Not insane	1	0	2	7	4	17	31
Psychopathic personality....	0	0	0	0	2	2	
Infection delirium	0	0	0	0	1	1	
Congenital syphils	0	0	2	4	6	12	
Syphilitic paranoia	0	0	0	1	0	1	
Chorea	0	0	0	1	1	2	
Pellagra	0	0	0	1	1		
Syringomyelia	0	0	0	1	0	1	
Multiple sclerosis	1	0	1	1	0	4	
Traumatic psychosis	0	0	1	1	2	5	
Cerebral arteriosclerosis	0	0	0	2	1	3	
Anemia	0	0	0	1	0	1	
Korsakoff's psychosis	1	0	0	2	2	3	8
Unclassified	1	0	3	6	4	24	38
Meningitis	0	0	3*	3*	0	6	
Organic dementia	2	1	0	1	3	8	
Brain tumor	1	3*	0	5*	1	10	
Brain abscess	0	0	0	1	0	1	
Paralysis agitans	0	0	0	1	0	1	
Optic atrophy	0	0	0	1	0	1	
Hypopituitarism	0	0	0	0	1	1	
Serous meningitis	0	0	0	0	1	1	
Echinococcus cyst	0	0	0	0	1	1	
Mongolian Idiot	0	0	0	1	1	1	
Total	7	4	16	53	64	209	353

Group IV. Cases with Wassermann reaction negative in the spinal fluid, grouped according to Wassermann reaction in blood serum.

Diagnosis.	5	4	3	2	1	0	Total.
Serum positive	0	2	4	14	16	74	112
Serum negative	7	2	7	39	48	135	236
Total	7	4	11	53	64	209	350*

Percentage of cases having negative spinal fluid Wassermann reaction giving some reaction with the gold sol, 41.1%.

Percentage of positive serum cases, but negative spinal fluid,—

(a) giving a reaction with the gold sol ("1-5")	33.9
(b) " " "1" reaction	14.29
(c) " " "2" " "	12.5
(d) " " "3" " "	3.6
(e) " " "4" " "	1.8
(f) " " "5" " "	0.0

Percentage of cases with negative Wassermann reactions in blood serum and spinal fluid:

(a) giving a reaction with the gold sol ("1-5")	44.2
(b) " " "1" reaction	20.6
(c) " " "2" " "	16.7
(d) " " "3" " "	3.0
(e) " " "4" " "	0.0
(f) " " "5" " "	3.0

DISCUSSION OF THE RESULTS.

1. The "Paretic curve." Certainly one of the most valuable services that has been credited to the gold sol reaction is as an aid in differentiating general paresis and cerebrospinal syphilis. In certain cases the clinical signs and symptoms are amply sufficient for this differential, but there remains a group of cases in which the differentiation is impossible either from the clinical aspects of the case, the Wassermann reactions, cell count, globulin or albumin determinations. Such cases can be told apart only by the result of treatment (the cerebrospinal syphilis cases responding to treatment, the paretic cases not so doing), or by histopathological examination. As has been mentioned above, it has been claimed that the gold sol reaction will give this information. In examining the figures, however, it must be remembered that just this difficulty in diagnosis has been encountered in the cases reported, so that unless checked by autopsy, as these cases have not always been, one is not certain of the diagnosis. A further point to be considered is that, having accepted the statement that the gold sol will aid in this differential the clinician takes this reaction into consideration in making the diagnosis, and in a doubtful case will allow the result of the test to swing the diagnosis. Then later the laboratory man uses these diagnoses to prove the value of the tests. That the clinician has come to place much reliance on it, is shown by the statement

* NOTE.—The difference between the totals in Groups III and IV due to not having Wassermann reaction in serum of three cases.

of Adolf Meyer¹⁷ that the gold sol test is the basis of our conception of general paresis. Bearing this warning in mind, we find that of the 114 cases diagnosed as general paresis all but one, or 99.17%, give the "paretic reaction," so it seems safe to believe that in the vast majority of instances the cases which do not give this reaction will not prove to be paresis. But, unfortunately, the converse does not seem to be true, for cases other than paresis may give the typical "paretic reaction." Thus of the 11 cases diagnosed cerebrospinal syphilis there are two which give this reaction. On one the diagnosis was confirmed by the fluid tests becoming negative under treatment by injections of mercury salicylate, the other showing at one time the lighter reaction and later the full "paretic reaction." Eleven cases are too few to give percentages that have any value, but it is of some interest to note that one case which showed positive Wassermann reaction in serum and fluid, a pleocytosis of slightly more than 100, an excess of albumin and globulin and a gold reaction of 1110000000 came to autopsy three days later and was shown to be a typical cerebrospinal syphilis. (This case should be kept in mind as it is referred to below in discussing the "light reactions.")

Our series contains only 5 cases of tabes dorsalis. One of these again gave the paretic reaction, a finding that has been observed by others. It must be remembered that it is possible that this case may be developing tabo-paresis.

There are six cases of congenital syphilis, giving evidences in the fluid of inflammatory involvement of the central nervous system. Four of these give the "paretic reaction," two do not, but give a lighter reaction. Five of the six cases merit the diagnosis of juvenile paresis, while in the sixth, which did not give the paretic reaction, there might be some question whether the parenchymatous cerebral structures were affected. At any rate one case diagnosed juvenile paresis did not give the paretic reaction.

There are seven cases showing no other evidence of syphilis and having negative spinal fluid Wassermann tests in both spinal fluid and blood serum, but which give the "paretic reaction." These seven cases to our minds are conclusive evidence that this reaction does not necessarily mean general paresis nor even syphilis. It may be noted that each of these seven was a case in which organic changes in the central nervous system were undoubtedly in progress, and six of them showed marked excess of albumin and globulin in the fluid.

From these 149 cases we feel justified in offering as a tentative conclusion that general paresis cases will in the vast majority of instances, especially if more than one sample of fluid is tested, give the "paretic curve," but that this curve may be given by the fluids from cases of syphilitic involvement of the central nervous system other than general paresis and also by

fluids from non-syphilitic cases, so that the "parietic curve" by itself is not sufficient evidence of paresis or even of syphilis. If, however, a fluid giving a positive Wassermann reaction does not give a "parietic curve" or one closely approximating it, it is strong presumptive evidence that the case is not one of general paresis. Thus the reaction has considerable value at times in the differentiation of certain cases of cerebrospinal syphilis and tabes dorsalis from general paresis.

The next point to be considered is the meaning of reactions in the "syphilitic zone," that is, reactions taking place in the first five or six tubes, or in the dilutions of 1/10 to 1/320. As has been seen, it is in these dilutions that the fluids from cases of cerebrospinal syphilis and tabes react, and it is outside of this zone in the higher dilutions that the fluids from purulent meningitis, tuberculous meningitis, brain tumor, etc., characteristically react, hence the assumption has been made that fluids reacting in the lower dilutions spelled syphilis in the subject. And as a certain percentage of the cases from which this reaction was obtained showed a positive Wassermann reaction in the blood, it was stated that this gold sol reaction in the "syphilitic zone" might indicate a syphilitic involvement of the central nervous system, and might be the only evidence of it. Thus the reaction of fluids from the Mongolian idiots in this zone has been offered as evidence that the condition is a result of syphilis.²⁰

Reference to Groups III and IV discloses about 40% of the cases having negative spinal fluid Wassermann tests showing reaction in this zone, and the percentage is as high in the cases whose blood serum reacted negatively as in those where it was positive. It is true that the reaction is not very strong in the majority, that is, most of the reactions only ran as high as "1" or "2." Due to the finding that so many fluids, which to the usual tests are negative, give this gold sol reaction, it has been held by some that this high reaction should not be considered. Thus Flesch¹² found 50% of his supposedly normal fluids giving some reaction, so that he was prone to consider that these reactions should not be considered positive unless the reaction was "3." But as about 60% of the fluids which were expected to give entirely negative reactions did give such a negative reaction, it seems that the color changes, even though not very marked, do mean positive reactions. In support of this idea we find that in a fair percentage of these cases there is a very slight globulin test, or a small increase of albumin or both. In a few the sugar-content of the fluid varied considerably from the average. These findings seem to bespeak a not entirely negative spinal fluid. But more to the point in considering these light reactions is that many of the known inflammatory conditions give just this type. Thus the autopsied

case of cerebrospinal syphilis, mentioned above, although showing marked products of inflammation in the fluid, gave a lightest possible reaction. Tabes and cerebrospinal syphilis frequently give these light reactions, but finding other tests positive in these cases we do not hesitate to call this reaction positive. Also cases of purulent meningitis and tuberculous meningitis likewise may give the weak changes. So we believe that these small changes do have a significance, but that we do not know what it means. But it is further found that a small percentage of the negative cases give a fairly strong reaction in this zone. We therefore conclude that there is no justification for making a diagnosis of syphilis on account of a gold sol reaction in the lower dilutions unless supported by other tests. The term syphilitic zone we consider a misnomer.

Our cases of brain tumor (10) and tuberculous meningitis (5) are too few to give any important percentages. These two conditions, according to the literature, give reactions in higher dilutions than the syphilitic cases, although at times it is stated, the reaction may occur in the lower dilutions. Our results, as may be seen from the charts, bear this out fairly well, so that it may be stated that the fluids from cases of brain tumor or tuberculous meningitis will usually give reactions in higher dilutions than the syphilitic cases and thus a test offers a helpful point in differentiation.

For the remainder of the conditions examined, no conclusions of diagnostic value seem justified.

CONCLUSIONS.

1. Fluids from cases of general paresis will give a strong and fairly characteristic reaction, especially if more than one sample is tested, in the vast majority of cases.

2. Very rarely general paresis fluid will give a reaction weaker than the characteristic one.

3. Fluids from cases of syphilitic involvement of the central nervous system other than general paresis often give a weaker reaction than the paretic, but in a fairly high percentage of cases give the same reaction as the paretics.

4. Non-syphilitic cases may give the same reaction as the paretics; these cases are usually chronic inflammatory conditions of the central nervous system.

5. When a syphilitic fluid does not give the strong "paretic reaction" it is good presumptive evidence that the case is not general paresis, and this test offers a very valuable differential diagnostic aid between general paresis, tabes and cerebrospinal syphilis.

6. The term "syphilitic zone" is a misnomer, as non-syphilitic as well as syphilitic cases give

reactions in this zone, but no fluid of a case with syphilitic central nervous system disease has given a reaction out of this zone, so that negatively it may be used, and any fluid giving a reaction outside of this zone may be considered non-syphilitic.

7. Light reactions may occur without any evident significance, while a reaction of no greater strength may mean marked inflammatory reaction.

8. Tuberculous meningitis, brain tumor and purulent meningitis fluids characteristically, though not invariably, give reactions in higher dilutions than syphilitic fluids.

9. The unsupplemented gold sol test is insufficient evidence on which to make any diagnosis, but used in conjunction with the Wassermann reaction, chemical and cytological examinations, it offers much information aiding toward the differential diagnosis of general paresis, cerebrospinal syphilis, tabes dorsalis, brain tumor, tuberculous meningitis, purulent meningitis.

10. We believe that no cerebrospinal fluid examination is complete for clinical purposes without the gold sol test.

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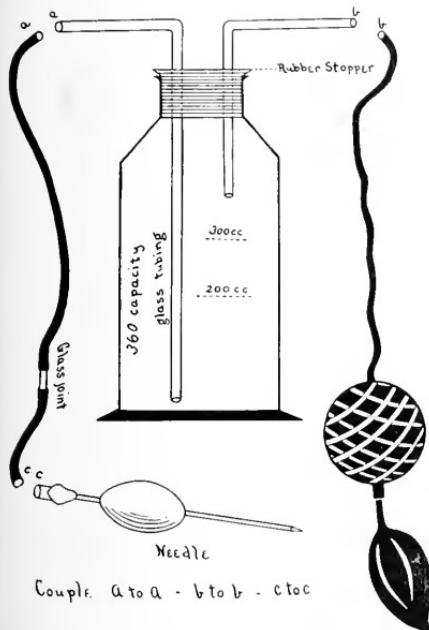
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New Instrument.

A SALVARSAN APPARATUS.

BY CHAS. F. DENNY, M.D., ST. PAUL, MINN.

The accompanying sketch represents a useful and simple Salvarsan apparatus which is much used here.



It is reliable, practical, and simple, also it is easily constructed by any one at small cost.

Take a wide mouthed bottle of 360 c.c. capacity, fit it with a rubber stopper perforated for two glass tubes as you would a wash bottle.

Take 26 inches of rubber tubing to fit the glass tubes, cut it 18 inches from the end and make a glass joint with the smaller cut end of the tube.

The long glass tube reaches to the bottom of the bottle and is to be connected with the rubber tubing into the end of which the needle coupling is inserted.

The short glass tube is connected with a double bulb such as is used with a thermocautery.

It is now ready for use after the salvarsan solution is poured in the bottle.

The stopper is fastened down by a wire or strips of plaster over the cork and around the neck of the bottle.

After the needle is inserted into the vein and the coupling is made, a few squeezes of the bulb are all that is necessary to force it slowly and steadily into the vein.

Care is taken not to allow air to enter the vein at the end of the injection.

The sketch renders more detail unnecessary.

Society Reports.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, MAY 5, 1915, AT 8 P. M.

The President, DR. JAMES C. WILSON, in the Chair.

CARDIOVASCULAR POISONS; THEIR METHODS AND RESULTS

DR. ROBERT N. WILLSON: To those who know the heart simply as a muscular pump, the function of which is to supply the various parts of the body with blood, the term cardiovascular poison will mean little more than a drug, which causes the heart to misbehave, or to functionate badly. It is no very recent discovery that if any human organ is overrich in its nervous supply, the heart is that one.

It is an exceedingly important item of knowledge that one of the main nervous distributions in the heart is subendocardial. Highly important also is an appreciation of the probability that the cardiac nervous structures enter in greater or less degree into the inception, and the discharge of each and all of the main functions of the heart. Of three groups of cardiovascular poisons, here briefly discussed, the first is decomposition of food products. These I believe constitute the causal factor in arterial changes and the hypertension contributing so actively to the cardiac disease of later years. A second class of cardiovascular poisons consists of microorganismal influences which make their attack from without. The infectious diseases approach without adequate warning, and the harm is accomplished before the danger is realized. Syphilis, tuberculosis, rheumatism so-called, and diphtheria illustrate fairly well the various forms of microorganismal invasion of the heart and vessels. Syphilis and tuberculosis begin with heredity and very frequently do we find the children of leptic or tuberculous parentage the subjects of myocardial or valvular defects. The tubercle bacillus and its toxin also furnish us with an invariably diseased heart. Regarding the acute rheumatic infection, we are in an uncertain and a transitional stage with respect even to its etiology. In diphtheria we experience nearly 100% of instances of myocardial involvement. The third class of cardiovascular poisons is that of tobacco and alcohol. Histories of two patients are cited illustrative of tobacco poisoning. It is my confident belief that between tobacco and the various forms of food toxemia can be divided the responsibility for the vast amount of arteriosclerosis not attributable to syphilis and old age. From the evidence secured in my own cases, as well as the more definite demonstration in the long sought human autopsy of Favarger, and the laboratory work of v. Otto, it seems fair to conclude that degenerative processes are at work in every tobacco poisoned heart. Alcohol is almost the twin of tobacco in its anesthetic and narcotic effect. We need not discuss its lack of claim to a food value. This lack has been demonstrated beyond all peradventure and accepted as a working principle in all of the foremost laboratories. We know that in small doses and in large, alcohol in continued use soon depresses and then paralyzes the vasomotor nerves. While we do not know that

alcohol produces arteriosclerosis, we know that tobacco does, and that the use of alcohol practically implies the craving for tobacco. Other excesses in food and venery are closely associated with alcoholism and the tobacco habit that tend equally toward sclerotic vessels and myocardial disease. It is impossible, therefore, either to indict alcohol upon the score of directly producing arteriosclerosis or to relieve it completely of either a direct contributory or indirect responsibility for much of the rapidly increasing cardio-vascular disease. It is only fair to exonerate the drug alcohol from contribution to the sclerotic total when used by the physician in therapeutic dosage, if there be any such thing. There is an abundance of reliable evidence to show that the administration of alcohol lowers the vital resistance to bacterial infections by diminishing the power of the human economy to marshal its phagocytes at will and to manufacture the antitoxins requisite to combat the infections which work mainly as toxemias. The only conceivable occasion on which the drug could assist in a grave toxemia would be in such an infection as typhoid fever, occurring in a strong, robust individual of high anti-toxic resisting power, in whom there was a too wholesale destruction of bacteria in the tissues with danger that the patient may poison himself to death through the very process that usually works the cure. In the vast majority of typhoid patients, however, this danger is not present. There are few physicians approximating above or below forty years of age who feel that a place remains for alcohol in the pharmacopeia of the well read and conscientious physician, except as an emergency stimulant, and then only in minimal dosage, which does not mean a half ounce or an ounce at intervals of a few hours. The physiologic effect of alcohol is better comprehended by the lay public today than by the average medical man, judging by the tide sweeping over the country. A week ago 700 physicians of Pennsylvania stood for the right of a community to determine by vote whether its citizens should exchange their health for avoidable cardio-vascular disease. The next advance will be the ranging of the national medical body on the side of the disuse of a drug now recognized, in any dosage, to be a cardiovascular nerve and muscle poison, a tissue destroyer, and an economic害.

I have touched in turn upon the several forms of clinical and laboratory evidence for and against the use of alcohol in medicine. I have mentioned three series of experiments confirming Dixon's conclusion that the first action of alcohol is a stimulation of the heart, and for every statement I have made I have given ample clinical and laboratory evidence of investigation known and trusted as such by the entire medical world. A study of the cardiovascular poisons is altogether incomplete without the consideration of an excessive production of the internal secretions, but I have confined myself to the three groups nearest to the citizen and the general practitioner.

DISCUSSION.

DR. H. A. HARE: Sometimes in meetings of American associations I regret that the custom is not carried out which is so constantly adhered to in English medical societies, namely: to follow the habits of our brothers the lawyers, who, at least, in court, attack one another vigorously. Anything that I say tonight, it goes without saying, is not said with any intention to give offense. Dr. Will-

son under the title of a paper on heart disease has really read an attack on alcohol as a drug. If I may be pardoned for saying so, the first mistake in his paper is that of making sweeping statements without the slightest justification for many of them, and some of them in direct controversy to known laws of physiology and pathology. To state, for example, that in the early stage of the influence of alcohol this drug stimulates the circulation by stimulating the vagus is to show an entire ignorance of what every second year student in medicine knows—that the function of the vagus is inhibitory and that in its action it decreases functional activity of the heart rather than increases it. When the statement is made that alcohol produces arteriosclerosis and arterial spasm, and in the same breath the assertion is made absolutely that alcohol depresses the entire vasomotor apparatus it is difficult to agree, for it is not easy to see how a drug can produce a rise of blood pressure at the same time that it is producing a lowering of blood pressure by depressing the vascular system in general. The reader of the paper does not seem to be familiar with what physiologists and pharmacologists recognize as the true physiological action of alcohol. So far as the circulatory action of alcohol is concerned, in moderate amounts it does not act as a stimulant or as a depressant, but it equalizes the circulation. I believe there is no drug that has physiological power, which, if wrongly used, will not also have the power to do harm. In a recent meeting of the County Medical Society a gentleman who read one of the papers said that alcohol was always contraindicated in tuberculosis. While such a statement is too sweeping to bear weight, published under certain circumstances it might do harm. While the harmfulness of alcohol is well known in miliary tuberculosis, in fibroid phthisis with cough interfering with digestion, the administration of alcohol is the administration of a food which is burnt up in the body, which lends energy to that body, which stimulates digestion, and which if given in the proper form may even help to expectorate the material which is in the cavities. What is needed, I take it, is the presentation before this College of a paper which recognizes that when alcohol is abused it does harm; when used rightly, it has a definite, specific, and often a very valuable place in medicine. This is true in diabetes mellitus in which disease, in certain cases, alcohol burnt up in the body possesses a distinct food value. The reader of the paper has gone one step further and made the dogmatic statement that *all*—I think he said *all*—researches show that alcohol decreases the ability of the blood to combat infection. I will be equally dogmatic—They don't do anything of the kind. On the contrary, there are researches that show that alcohol increases the ability of the body to protect itself in certain instances. Some time ago, I presented a paper before the Association of American Physicians in which I presented the results of a research to the effect that in typhoid fever and tuberculosis, alcohol in proper doses increases very materially the bacteriolytic action of the blood. The technic by which the studies were made was according to directions given by Dr. Simon Flexner. Upon one point Dr. Willson and I agree,—that the crusade in the profession which has been waged against alcohol has diminished the size of the dose that many physicians now give.

DR. H. C. WOOD: There are several loose expressions in Dr. Willson's paper which I do not think

should be allowed to go uncorrected. He speaks of the "cardiovascular action" of drugs. It is well-known that a drug may have one action upon the heart, and an opposite action upon the blood pressure. Because a drug lowers blood pressure is no proof that it depresses the heart, and vice versa. Pharmacologists always separate these two actions, and study the effect of the drug upon the heart as distinct from its effect upon the blood vessels. If he had made this distinction he would probably not have fallen into the error of comparing alcohol to nicotine in its physiological action. It is hard to imagine two drugs more widely different in physiological effect than alcohol and nicotine.

Dr. Willson in drawing his conclusions from the experiments quoted, fails to make sharp the distinction between the therapeutic, and the toxic dose of alcohol. He speaks of the secondary results of alcohol as if the depressant effect followed when therapeutic quantities were given; whereas, I understand that the depressant results are the effect of toxic doses. Dr. Willson quotes the experiments of Dr. Dixon, but neglects to say that Dixon reached the conclusion that alcohol acted as a food-stuff for the heart. It is a long time since I read Kochmann's paper, which he has also quoted, but the impression made upon my mind at that time was that he regarded alcohol in proper dosage as a stimulant to the heart muscle. I do not think there is any reliable scientific evidence that the secondary effect of small doses is a depressant action upon the heart muscle.

DR. WILLSON, closing: I am by no means sorry to have my paper combated this evening. I am afforded an opportunity to reply to one or two misleading statements, far more "sweeping" and "irresponsible" than anything to be found in my paper. For instance, Dr. Hare ventured the assertion that I was guilty of ignorance of the first principles of cardiac physiology on the basis of my having made a statement (as claimed by him) that alcohol or any other drug stimulates the heart by stimulating the vagus nerve. What I actually did say, and that which I now repeat, was that alcohol causes a stimulation of the cardiac action through its depressant action upon the vagus nerve. There is no one, I imagine, who is not familiar with the fact that the action of the vagus on the heart is inhibitory. Dr. Hare by his remark would appear to lay himself open to the suspicion of possible ignorance with respect to the action of the sympathetic nerve when the controlling influence of the vagus is set aside. Again, I made no such statement as that alcohol produces arteriosclerosis. Indeed, I made absolutely the opposite statement, namely: that there exists no final evidence that alcohol does produce arteriosclerosis. I did show that the combination of tobacco with alcohol often results in the production of arteriosclerosis. I also took pains to refer to the fact that the combined action of the two drugs gives a different result from that of alcohol alone. Dr. Hare claims that the difference between the action of alcohol and tobacco lies in the fact that tobacco raises the diastolic, and lowers the systolic blood pressure, whereas alcohol lowers both in its secondary action. Dr. Hare is correct in his behalf that the dominant action of alcohol is vasodilator after its first temporary splanchnic-constrictor influence, but he forgets the important fact that vasodilation also characterizes tobacco after its early vasoconstrictor action, and becomes its permanent influence. The evidence obtained from the action of both of these drugs is

to the effect that vasoconstriction and the elevation of blood pressure are not indispensable to the production of arterial disease. I was sorry to hear Dr. Hare revert to the fallacy that alcohol is a food in any true sense of word. In a recent meeting of the County Medical Society, Dr. A. E. Taylor showed in a most conclusive manner that alcohol is never a food in the true sense; and that to call it such shows an entire ignorance of the readily available laboratory findings. Dr. Taylor's statements represent the consensus of intelligent medical opinion on the subject. If in the discussion anyone has seemed to question the evidence I have submitted, such questioning is of the accuracy of the statements of investigators known and trusted by the entire medical world.

SERUM STUDIES IN PREGNANCY.

A Study of the Specificity of Ferments in Pregnancy and the Mechanism of the Abderhalden Reaction. 1. By Means of Local Skin Reactions. 2. By Proteotoxin Production in Vitro.

BY DR. JOHN A. KOLMER

AND

DR. PHILIP F. WILLIAMS.

Aside from the probable clinical value of the methods devised by Abderhalden in the serum diagnosis of pregnancy and various pathological conditions, such as malignancy, tuberculosis, lesions of the nervous system and ductless glands, most interest concerns the question of the specificity of the ferments or antibodies concerned and the mechanism of their action. While Abderhalden and many of his pupils have claimed a high degree of specificity for the "protective ferments" and his pregnancy reaction, claiming from the beginning that errors of technic were largely responsible for the failure of others to obtain satisfactory results, the dialysis test as now conducted is not especially difficult and sufficient work has been done by other investigators who have carefully followed Abderhalden's technic to warrant the claim that other factors than those purely technical may be responsible for the divergent and non-specific results obtained.

SUMMARY OF PART I.

1. A *placentin* (No. 1) prepared by concentration of expressed placental juice, preserved with 1% glycerin and 0.5% tricresol and injected intracutaneously yielded skin reactions characterized by erythema, infiltration and pain in 87% of pregnant or recently delivered women, and in 66% of women who have borne children, but who were not pregnant at the time these tests were made. This extract also caused 20% of the men tested to react slightly.

2. When diluted 1 to 10 with normal salt solution this extract yielded 80% positive reactions among pregnant or recently delivered women, and 50% positive among women who had borne children.

3. A *placentin* (No. 4) prepared in the same manner as the first extract except that glycerin was not used in its preparation or preservation, yielded 40% positive reactions among pregnant or recently delivered women, and 14% positive reactions among women who had borne children. It is probable that

glycerin itself acts as an irritant, especially in the hypersensitive skin of pregnant women.

4. A *placentin* (No. 2) prepared from the residue resulting from the concentration of expressed placental juice yielded 55% positive reactions among women who were pregnant or recently delivered. This *placentin* produced slightly positive results in 20% of the men tested.

5. A glycerin extract (*placentin* No. 5) upon cutaneous inoculation yielded 50% positive reactions among pregnant and recently delivered women. Of several multiparous and nulliparous women tested, all reacted negatively.

6. Extracts of human male and female kidney (*nephrons*) prepared in the same manner as the *placentins* produced a number of positive reactions among pregnant, puerperal, multiparous and nulliparous women. The most marked reactions were observed with the extract of human female kidney.

SUMMARY OF PART II.

1. Proteotoxins are produced during the Abderhalden pregnancy reaction, which, when injected intracutaneously and intravenously into normal animals, produce local and general changes analogous to anaphylactic reactions.

2. Proteotoxins produced in a mixture of human pregnancy serum and human placenta are toxic for normal guinea pigs.

3. The ninhydrin test with dialysates and intracutaneous and intravenous injections of the sera in the Abderhalden reactions yielded fairly parallel indices of the degree of protein digestion and proteotoxin production.

4. The addition of various tissue substrates other than placenta to human pregnancy serum was followed occasionally by proteotoxin production, as shown by intracutaneous and intravenous tests with the serum, but except when a substrate of human kidney was used, the amount of proteotoxin produced was usually much less than that produced in mixtures of pregnancy serum and human placenta. Similar results were observed with inorganic substances, as kaolin, starch, and quartz.

5. The proteolytic ferments in healthy normal serum may produce small amounts of proteotoxins when tissue substrates are added and occasionally, and to less degree, with inorganic absorbents as kaolin and starch.

6. Complement in itself has no direct relation to the ferments in pregnancy serum. Inactivation of serum probably reduces its digestive power through destruction of normal proteolytic ferment and reactivation of a serum by means of the addition of serum complement increases its digestive power to a slight degree probably by reason of the addition of these normal ferments.

7. In pregnancy serum there are two sets of proteolytic ferments, normal and non-specific and specific ferments. The former may be released through absorption of the antifermen by means of various nonspecific organic and inorganic substances, whereas, the latter are released through absorption of the antifermen by means of the specific protein antigen alone.

8. Our experiments suggest also that the protein matrix in the Abderhalden reaction is not only the protein of the serum, but also to some extent is that of the tissue substratum itself.

While we have naturally hesitated to report upon the local skin reactions in pregnant and puerperal

women until a relatively large number were studied, in view of the contradictory results obtained by others, we feel justified in concluding that the reactions were anaphylactic in nature and due to an anaphylatoxin produced by the action of general ferment upon a protein substrate. We do not believe at present that the reaction in the skin test for pregnancy possesses a practical value in diagnosis, certainly not among women who have borne children. According to experiments described in Part 2, pregnancy serum contains proteolytic ferments which, when rendered active, produce toxic substances capable of inducing local and general reactions analogous to those observed by Vaughan, Friedberger and others and regarded as anaphylactic in nature. Our experiments also suggest that in pregnancy serum there are two sets of proteolytic ferments, one composed of normal non-specific ferments and the second of more or less specific ferments. Our experiments are in accord with those of Jobling and Petersen, Plaut, Peifer, Bronfenbrenner and others to the extent that inorganic substances as kaolin are capable of releasing the normal trypic activity of a serum probably through the absorption of antifermen followed by the digestion of serum protein. Our work indicates that this action is non-specific, and the result of the release of normal proteolytic ferments, whereas, the activity of the specific ferments in pregnancy serum is best in evidence in the presence of placental tissue.

Harvard Medical School.

RENAL PHYSIOLOGY AND PATHOLOGY.*

PHYSIOLOGY OF KIDNEY SECRETION—DR. E. G. MARTIN.

In hasty review of the anatomy of the kidney it is of importance to note that the afferent vessel of the tangled mass of capillaries, known as the glomerulus, is larger in lumen than the efferent vessel, hence, there is obviously an interference with the escape of fluid through a purely vascular channel. Furthermore, the cells lining the tubules suggest by their appearance and their rich blood supply that their function is secretory. This brings up a question which is better considered after we have reviewed the data of urinary secretion, on which there can be no doubt. The facts of importance are:

(1) Urine is more concentrated than the blood from which it is derived, and also presents striking differences in composition from that of the blood.

(2) The structure of the glomerulus affords a greatly increased "bed" for the flow of the blood through the capillary and, pressure being maintained by a small outlet, provides an ideal arrangement for filtration: *i.e.* a slow current under pressure with very thin containing walls. It is agreed by nearly all investigators (1) that the glomerulus acts as a filter by letting through water (a large amount of the water in the urine), and (2) that the more complex organic substances with larger molecules are not let through by filtration but are secreted; creatinin for example.

* Lectures at the Harvard Medical School on Dec. 10, 1915.

(3) In general the function of the kidney is to maintain the blood in standard condition, by means of selective qualitative and quantitative elimination. With the exception of the volatile constituents eliminated by the lungs and the few substances eliminated by the bowel and the skin, all of the qualitative and quantitative abnormalities of the blood must be dealt with through the kidneys.

Now the controversy in regard to kidney secretion is over the presence in the urine of substances of small molecular weight—one camp claiming that they filter through with the water in the glomerulus, the other camp believing that these substances are secreted in the tubules. Time prevents a thorough discussion of all the factors in the two theories, but as the secretion theory is most generally accepted we shall consider the evidence in its favor.

If, as Starling and the supporters of mechanical filtration believe, crystalloid (no colloids) substances are filtered through, then urine in the glomerulus should have the same concentration of crystalloids as the blood plasma. But we find in nature two occasions where the urine, as passed, has lower concentration than blood plasma: (1) After copious beer drinking. (2) In cases of salt hunger where, with diminished intake of salt, the urine falls below the blood in salt content. In order to explain the high concentration of some urines, the defenders of the mechanical theory presume marked absorptive function on the part of the tubules, but this assumption is made unlikely by Leschke's work in 1914, in which he demonstrated by microchemical means the presence of sodium chloride and sodium phosphate in the cells of the tubules and their absence in the glomeruli.

But what is the explanation for the secretion of urine? By what mechanism is secretion initiated or increased? We are expecting more and more in physiology to find chemical agencies at the bottom of problems, and giving less attention to purely nervous mechanisms as explanation for bodily changes. No secretory nerves have ever been satisfactorily demonstrated in the kidney; only vaso-motor nerves have been shown. It is probable that secretion is activated by hormones. This theory is supported by the fact that a substance may be derived from the posterior lobe of the pituitary which will produce increased kidney action, and further by the recent work of Cow who has shown a diuretic substance in the cells of the jejunum.

The action of diuretics is explained by the hormone theory of secretion on the basis that any substance increasing the volume of the blood (saline diuretics) increases the amount of hormones passing through the kidney, and that certain chemical substances (caffein-type of diuretics) act as stimulators of hormone action or as simply an irritative chemical substance.

DR. F. G. MALLORY: When the pathologist is called upon to give a basis for the classification of renal disease, he must bear in mind certain elements in making the classification.

1. **The Time Element.** The line between what we shall call acute or what we shall say is subacute or chronic must be arbitrary. An acute lesion due to *staphylococcus aureus* may develop in three to four days, whereas it takes months for leprosy to develop its own type of acute lesion. And in subacute

nephritis the toxic form differs so largely from the infectious that the meaning of subacute is thrown into doubt. By the word "chronic," too, the pathologist may mean an old healed condition, or he may mean a recurrent, or perhaps, continuous one. Then it is evident that acute, subacute and chronic are not exact in meaning and are qualified by the condition which they attempt to describe.

2. Etiology is usually mentioned in kidney disease when it is known. Tuberculosis of the kidney is so spoken of, and the scarlet fever kidney is considered an adequate name for a distinct type of lesion.
3. The nature of the lesion, whether toxic or infectious, or a combination, is of considerable importance.
4. Anatomical distribution of lesions is used most consistently in pathological classification.

Commenting on various photo-micrographs which were then shown, Dr. Mallory called attention to the reason for the difference between a tubular nephritis due to corrosive sublimate and the ordinary tubular nephritis. It is due to the fact that in the case of the corrosive sublimate kidney a deposit of lime salts occurs on the necrosed cells in the tubule, and normal cell regeneration is rendered hopeless. Hence the failure of the kidney to recover adequate function. Often what is really acute tubular is called acute interstitial, because there is so much interstitial cell infiltration and proliferation. There is a characteristic tubular nephritis caused by argyrol injections flowing into the kidney structures. The numerous minute deposits of silver in the tubules produce an x-ray picture which looks pathological—and the surgeon removes what he should have left in.

Glomerulo-nephritis may be predominantly capsular or intracapillary—the pure capsular has not yet been seen by the speaker. The final condition in capsular nephritis is the obliteration of the glomerular structure by organization into ever constricting fibrous tissue. Vascular nephritis may show the same lesions as an infectious agent would produce. The glomeruli are shut off from circulation and the endothelial cells undergo fatty degeneration. Amyloid is the only condition that affects merely the connective tissue, and is a purely mechanical lesion due to the pressure of the amyloid as it is produced by the fibroblasts. Interstitial reactions are often seen in ascending infections and, resulting in a diffuse process, are mistaken for the arterio-sclerotic type. Two essential differences between infections and toxic lesions are worth remembering always: an infectious lesion tends to be focal and may be of a different age from other lesions in the same kidney, whereas a toxic lesion tends to be diffuse and of the same age as the lesions elsewhere.

DR. HENRY A. CHRISTIAN: The distinction brought out by Dr. Mallory between infections and toxic lesions fits with the clinical experience that although you may see many signs of renal involvement, the function may remain perfectly adequate on account of a local distribution of lesion. Also this distinction explains the serious character of toxic nephritis which we often underestimate. Hence, we come to a more moderate view that kidney function and other bodily signs and symptoms

form the best basis for estimation of the kidney condition.

The clinical classification of nephritis cannot be as minute as the pathological. Pure types are far from the rule even in pathology and clinically the picture is very frequently a mixed one.

(a) Acute nephritis can be described best not by any special classification but by mentioning the duration, when possible the cause, and the severity of the harmful agent as is shown clinically. Further than this you cannot go.

(b) In chronic nephritis the more cases are studied the more futile and inadequate does subdivision into classes become. There are groups of cases which can be separated into:

(1) Cases associated with oliguria, much edema and slight blood pressure. This group is the "chronic diffuse nephritis without induration" of some authors, or "chronic glomerular nephritis," or "chronic parenchymatous nephritis."

(2) Cases associated with polyuria, and no edema except secondary to cardiac decompensation. This group is the chronic diffuse with induration, or chronic interstitial nephritis.

(1) Primary chronic interstitial nephritis has slow progress, with renal lesion uppermost and not so much emphasis on hypertension or cardiac involvement. The diagnosis is based on history rather than clinical study.

(2) Secondary type following attack of Group I nature, where picture changes over to sclerotic changes in the glomeruli and a shrunken kidney.

(3) A third division of chronic interstitial nephritis with induration is made by some, the arteriosclerotic kidney, where renal involvement is probably secondary to primary process in the arteries.

The general symptoms of chronic nephritis are such that it is important to realize:

- (1) A great many patients arrive at coma and uremia without having any symptoms.
- (2) A second class of patients on learning that they have albuminuria, will consult a physician early while they feel well, and thus get adequate treatment.
- (3) Some patients show cardiac symptoms which, on investigation, prove to have a renal origin.

The symptoms of chronic nephritis are legion, and often confusingly like other entirely different conditions. A few should be mentioned: loss of strength and physical deterioration, failure of concentrative power and forgetfulness. Headaches usually in the morning, with or without high blood-pressure. Great tendency to increased nervous irritability. Tremor. Sleeplessness—ability to fall asleep but constant waking up almost immediately. Paresthesias and hyperesthesia and peripheral neu-

ritis. Some cases with hemi-, mono- or paraplegias. Transient aphasias. Bilateral or unilateral hemianopsia and scotomata—all transient. Albuminuric retinitis. Gastro-intestinal: loss of appetite, coated tongue, foul breath, sense of heaviness in abdomen, intestinal flatus, vomiting, intervals of constipation or diarrhea. Abdominal pain in epigastric or appendix region. Polyuria, frequency, suppression, oliguria. Paroxysmal dyspnea, especially nocturnal dyspnea of asthmatic type. Recurrent winter bronchitis in old people. Dry skin and itching, occasional skin lesions of various type. Nose bleeds occasionally. Edema.

Most of the above symptoms are not associated with edema, and they may be of very gradual onset.

H. A. CHRISTIAN, M.D.
A. GREGG, A.B.

Book Reviews.

Studies in Bacillus Welchii. By J. P. SIMONDS. New York: Rockefeller Institute for Medical Research. 1915.

This monograph, issued on September 27, 1915, as No. 5 of the series of the Rockefeller Institute for Medical Research, represents an exhaustive investigation by the author in the laboratory of preventive medicine and hygiene at the Harvard Medical School. It is concerned with a morphologic, cultural and biologic study of Welch's gas bacillus, especially with reference to its classification and its relation to diarrhea. Clinical investigations on this latter aspect by Dr. Karl Ten Broeck and Dr. Frank Garm Norbury, were published in the issue of the JOURNAL for August 19 (Vol. clxxiii, p. 280). The data of Dr. Simonds's researches are recorded in a series of seventeen tables in the text. He concludes that the Welch bacillus designates not a fixed species, but a closely related group of bacteria requiring further classification. As a tentative basis for such classification he suggests the ability of different strains to produce acid and gas or to sporulate in media containing inulin and glycerin. Dr. Simonds personally isolated and studied about 50 of these strains with reference to their cultural and biologic characteristics and their toxin producing and hemolyzing powers, and described a method for determining the number of spores of this organism in the stools of infants. He also made quantitative studies of a large number of cases of normal adults and infants, of adults and infants with diarrhea and of patients with pernicious anemia, and determined the relation of these organisms to fermentative processes, of which they may be regarded as a reasonably accurate index. The monograph closes with an elaborate bibliography of 476 titles on this subject.

Hand-Book of Obstetrics. By KEDARNATH DAS, M.D. With 376 illustrations. India: Butterworth and Company, Ltd. 1914.

Das has presented this subject in a very satisfactory manner. His treatment of the various obstetrical procedures follows in the main closely that of American authors. The illustrations, chiefly from other authors, are well chosen and credit is given in all cases to the original. The last few pages contain "Hints on Obstetric Surgery," which are most valuable not only to the beginner, but to the physician who thinks himself fully capable of undertaking major obstetric work.

War Surgery. By EDMOND DELORME, Médecin Inspecteur Général de L'Armée. Translated by H. DEMÉRIC, Surgeon to In-Patients, French Hospital, London. With illustrations. New York: Paul B. Hoeber. 1915.

The volume upon War Surgery, which was reviewed in the BOSTON MEDICAL AND SURGICAL JOURNAL of June 24, 1915, has appeared translated into very good English by H. De Méric. The size and general characteristics of the book remain as in the French edition. The plates are beginning to show a little the effects of wear and frequent reproductions.

As was said before, the book is an excellent compendium of a department of surgery, which is at present of extreme interest.

A Text-Book of Surgery. For Students and Practitioners. By GEORGE EMERSON BREWER, A.M., M.D., assisted by ADRIAN V. S. LAMBERT, M.D., and by members of the surgical teaching staff of Columbia University. Third and enlarged edition. Thoroughly revised and rewritten. Illustrated with 500 engravings in the text and 23 plates in colors and monochrome. Philadelphia and New York: Lea and Febiger. 1915.

The third edition of Brewer's well known Text-Book of Surgery appears as a well bound, well printed, well illustrated volume of one thousand pages. It is fundamentally changed from the previous editions, not only by its increase in size and by the addition of many new illustrations, but also by the fact that it is no longer the work of Dr. Brewer alone, but of seventeen members of the teaching staff of Columbia University. It may fairly be taken, therefore, as an authorized statement of what the College of Physicians and Surgeons of New York believes to be essential for its students in the subject of surgery.

The transition from a one-man book to a col-

laborative volume has been effectively accomplished. It is indeed remarkable that the book retains to so high a degree the unity which is associated essentially with a volume written by a single author; this happy fact is probably due in considerable measure to the work of Dr. Lambert as editor; at all events, it is a fact that increases considerably the value of the volume as a text-book for students.

Dr. Brewer has revised the chapters dealing with the face, neck, throat, chest, upper alimentary tract, liver, pancreas, kidneys and ureters. All the rest of the book is the work of the collaborators. Justifying the statement of the preface, the book is virtually a new one. In looking through the text, it is pleasant to find that no mention of wire is made in the description of the operation for suture of the patella; that the "operative treatment of fractures should not be employed unless a satisfactory reduction cannot be obtained and maintained by the closed method"; that the Whitman method of treatment of unimpacted fracture of the neck of the femur is advocated; that the summary of the operative indication in appendicitis is rational, but not rabid; and that the descriptions of the various methods of operative attack in general contain all essentials, but are exceptionally brief, concise and clear.

The lumiére colored photographs deserve a special word of commendation, since they are exceptionally good. It is obvious that there are very great difficulties associated with the problem of maintaining a limit of one thousand pages for a complete surgical text-book. In spite of this fact, Dr. Brewer has succeeded in a very high degree in accomplishing his purpose of "presenting clearly every phase of Modern Surgery." The book is strongly recommended to students and practitioners.

Twilight Sleep. By ALFRED M. HELLMAN, B.A., M.D., F.A.C.S. New York: Paul B. Hoeber. 1915.

Hellman is a firm believer in twilight sleep, count of the use of twilight sleep abroad and in this country. He has summarized the more important articles on the subject, but has not included in the bibliography by any means all of the articles which have appeared, although he states the bibliography is complete to June, 1915.

Hellman is a firm believer in twilight sleep for he says in the final sentence of his book that "until some better and more easily manipulated treatment is devised the technic outlined will be the method of choice for alleviating the pains of childbirth."

There are many more typographical errors than should occur in such a small book, and one would have difficulty in finding in the *Index Medicus* the names of some of the authors as Hellman has them.

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126 Massachusetts Ave., Corner Boylston St., Boston, Massachusetts.

DOCTOR STRONG'S WORK IN SOUTH AMERICA.

In the brilliancy of the work accomplished by Dr. Richard P. Strong last summer in the suppression of the epidemic of typhus fever in Serbia, and of his work four years ago, at the time of the epidemic of pneumonic plague in Manchuria, the medical profession, as well as the public, is likely to overlook the equal brilliancy of his work and that of his associates in South America in 1913. In that year Dr. Strong went as leader of the first expedition to South America of the Harvard School of Tropical Medicine. Associated with him in the personnel of this expedition were Dr. Ernest E. Tyzzer, assistant professor of pathology in the Harvard Medical School; Mr. Charles T. Brues, assistant professor of economic entomology in Harvard University; Dr. A. W. Sellards, assistant in tropical medicine at the Harvard Medical School; and Dr. J. C. Bastiaburu, director of the

Municipal Laboratory of Hygiene, at Lima, Peru. The report of this expedition has recently been published in a remarkable volume* issued from the Harvard University Press and abundantly illustrated with original figures.

In the introductory chapter the purpose of the expedition is stated to have been the investigation of certain forms of tropical disease in South America, with the idea of collecting material to be used for the instruction of students in the various courses of the school. The itinerary of the expedition is outlined, which was first to Kingston, Jamaica, thence to Colon and Panama, and from the Canal Zone down the west coast of South America to Buenaventura, Colombia, and Guayaquil, Ecuador. Finally the expedition went to Lima, Peru, whence it returned to Boston. In this chapter also are stated the principal disease problems whose investigation was to be undertaken.

The succeeding chapters deal respectively with material obtained and the discoveries made with regard to the following diseases: oroya fever, verruga Peruviana, uta, and yellow fever. There are also valuable accounts of the entomological investigations made by the expedition at Mutucana, Sureo and San Bartolm , in Peru, on various organisms supposed to be associated with the transmission of verruga Peruviana; of sanitary conditions and of the principal diseases prevailing at Guayaquil; and of the linguatulida obtained from crocodiles in the rivers near this city. There is also an appendix of five minor entomological communications.

Particular emphasis and three-fourths of the space in the report are given to the studies of oroya fever and verruga Peruviana. The importance of these hitherto little known tropical diseases is pointed out, and their distribution, seasonal prevalence, clinical features, pathology and histopathology are considered in detail. There has been confusion in the past between these two diseases, whose distinctive etiology had not been determined. After studying the conditions of their existence in Peru, it was concluded by the expedition that the two are distinct diseases. Verruga Peruviana is shown by Dr. Strong and his associates, by experimental cultivation and inoculation in animals, to be due to a virus transmissible to animals by direct inoculation and producing in them definite lesions. Oroya fever, on the other hand, is shown to be

* Report of First Expedition to South America, 1913. Cambridge: Harvard University Press, 1915.

due to an organism, parasitic in the red blood corpuscles and the endothelial cells, and sufficiently distinct from the other hematozoa to be classed in a new genus. *Verruga Peruviana* is chiefly characterized by a skin eruption and is very rarely fatal; whereas *oroya* fever is characterized by pyrexia and by a rapid and pernicious anemia, resulting in extreme prostration and frequently in death. The clear clinical differentiation of these two diseases and the scientific experimental determination of their etiology constitute the principal contribution of this expedition to the science of tropical medicine. It is significantly noted in the introduction that the results obtained and the discoveries made by the expedition serve to emphasize the importance of sending to the tropics other expeditions for the investigation of other specific problems. In this instance the knowledge obtained has been secured at comparatively small cost.

A word of repeated commendation should be added for the original illustrations presented in the form of forty-eight full-page plates, many containing two or more figures and a number being colored. It needs hardly to be added that the credit for the successful carrying out of this expedition redounds not only to Dr. Strong and his associates, but to the Harvard Medical School and to the American medical profession.

THE PROFESSION OF MEDICINE.

THE Harvard Medical Alumni Association has recently published a book called "The Profession of Medicine," compiled and edited by Dr. Arthur B. Emmons, 2nd, director of the Appointment Bureau of the Harvard Medical School. The book is a study of the doings and opinions of ten classes of the Harvard Medical School, 1901 to 1910, and is intended to be a helpful guide to the prospective practitioner and to those interested in the education and preparation of medical students for their several callings in medicine. In making this inquiry it was decided to send a circular letter to the members of ten classes, approximately nine hundred men. These physicians had been out of the Medical School from three to thirteen years. Some, therefore, were just beginning to practice after hospital work, while others were well established. No name or identifying address was asked. The questions were ten in number. They

asked for the location and the population of the town or city chosen, amount of hospital work taken after graduation, whether in general practice, or specialty, laboratory, teaching, public health or special work, amount of money made in each successive year since leaving the School, and the per cent of work now paid for in full. They also asked for an opinion on the need of the community for general practitioners, specialists, surgeons, and public health officers, whether a premedical preparation should predominate in studies of general culture or natural science, what was lacking in the school course to fit the recipient for his particular work, and whether the practice of medicine had proved satisfactory or unsatisfactory.

Over one-third of the men answered, and their frank expressions of opinion are most interesting and illuminating. A feeling of great satisfaction and love for the career of medicine is expressed by many men in the profession, both because of the amount of good they are enabled to do in the world, and because of the intense interest of the work itself. Very few regret their choice of life work, although there are many complaints against the overcrowded condition of the profession, the competition with "quacks" and the small monetary reward to be gained from its pursuit. The replies to the question as to the branch of medicine practiced is a striking comment on the medicine of today. Only 36 men were in general practice solely, 134 were in general practice with a specialty, 142 in specialties only. Of the specialists, 90 practiced surgery, 28 medicine, 23 obstetrics, 23 laboratory work, 19 eye, ear, nose and throat and 36 teaching.

Many physicians consider the practice of medicine unsatisfactory from the standpoint of money-making. The expense of training, that is, the amount of time and living expenses, far overbalance the actual amount received from patients in the early years of practice. Some men rather cynically express themselves to the effect that the only satisfactory way of entering upon this career is to regard it as a philanthropy. The few men who appear to have entered it solely to gain the reward of gold regret their choice of the career. The general opinion is that the consciousness of satisfaction comes not from the earnings in money, but from the amount of good accomplished for which the medical profession gives the opportunity. The

average earnings of the class of 1901 range from \$866 for the first year to \$4680 for the thirteenth year; that of the class of 1910, \$1237 for the first year and \$1835 for the fourth year.

The hospital training received after graduating from medical school is regarded by many as the most valuable part of their entire training in medicine. Nearly every man who did not take a hospital internship either specifically mentions his deep regret or he emphasizes the need of those especial things which an internship furnishes, such as actual experience in handling patients, surgical technique, details of treatment, and sufficient clinical instruction. On the other hand, certain men point out the fact that their lack in the medical school along lines of general therapeutics was made up afterward in the hospital. As for pre-medical education, 120 graduates favored sciences, 110 the arts, and 70 both or equally.

In general, summarizing from the report, the following facts may be stated. Two hundred and twenty-five definitely state that the practice of medicine has proved satisfactory to them, sixteen that it has not. The life, especially in rural districts and small towns, is often very strenuous and seldom is it lucrative. This is usually compensated for by the devotion of patients to their doctor, much less felt in urban districts. Unreasonableness and ignorance on the part of patients are perhaps the most trying parts of practice and require a large measure of benevolent patience. To be a good general practitioner takes more brains, judgment and energy than to succeed in a specialty. Specialization requires more preparation and brings bigger and easier returns. It is not surprising, therefore, to find that but thirty-six men were doing general practice only, while one hundred and thirty-four were doing general practice with a specialty, which probably would lead them in a few years to limit their work to the specialty. One hundred and forty-two already were doing only special work. For this reason it can scarcely longer be said that the majority of the graduates of the Harvard Medical School must go into general practice, or that the chief aim of the Harvard Medical School must be to train the general practitioner. Rather must its aim be to train broadly men of versatile capacity to meet the changing requirements of the medical profession, whether these requirements are those of the general practice of medicine in a rural district or those of one of a group of spe-

cially trained experts in a larger community, or to teach, or to enter public health work, or to develop new fields of medical usefulness. The question of location is a vital one in the doctor's career. Most of the dissatisfaction with the practice of medicine is traceable, directly or indirectly, to overcrowding. There seems to be no method at present of intelligently distributing physicians according to the need. It has remained a question largely of individual fancy resulting in the crowding to large cities. Several men speak feelingly on the question of proper instruction in medical ethics and on this subject the public also often wonders. Specific mention is made of various evils, such as fee-splitting, lodge practice, quacks, and patent medicines. But the greatest danger of all to the individual and to the profession in general is commercialism.

RÉSUMÉ OF COMMUNICABLE DISEASE IN MASSACHUSETTS FOR NOVEMBER, 1915.

THE number of cases of communicable diseases reported to the Massachusetts Health Department during November varied slightly from the number reported during October. The total number of cases this month was 4574; last month 4547. The following diseases have decreased in number: anterior poliomyelitis, cerebrospinal meningitis, diphtheria, and typhoid fever. There was an increase in the number of cases of chicken pox, measles, scarlet fever and whooping cough.

The amount of tuberculosis reported is of interest. During November, 1914, 510 cases of all forms of this disease were notified, while in November, 1915, 601 cases were notified. This increase in cases in all probability is due to better reporting as a result of the operation of the tuberculosis dispensaries.

In comparison with the same month last year the total number of cases was larger. This increase was due largely to the variation in the number of cases of measles and the marked increase in the number of cases of whooping cough.

Aside from tuberculosis (which always causes the greatest number of deaths), the important causes of death were diphtheria, typhoid, whooping cough. Of these diseases, diphtheria with its 65 deaths is of vital interest. Notwithstanding the fact that we know the cause, modes of

transmission, and have an efficient cure, the great toll of deaths continues from this disease. The other two diseases of prime importance are whooping cough and typhoid fever. An analysis of the returns shows that whooping cough caused 23 deaths during November. When we reflect that there is almost three times as much whooping cough in this state this year as there was last, it requires little calculation to anticipate a large number of unnecessary deaths this year. While there were only five deaths during the month from measles this does not tell the whole story. The after-effects of this disease are very much more harmful than the disease itself. This applies also to scarlet fever.

While the total number of cases of diphtheria decreased, the disease is still prevalent in the following places: Springfield, Worcester, Southbridge, Marlborough, Cambridge, Saugus, Brockton, Billerica, Leominster, Fitchburg, Maynard and Lowell. In some of these places there has been no increase in the number of cases over last month. In fact, in some of them there has been a decrease. This is true of Fitchburg.

In typhoid fever the only important focus has been at Ashburnham. Here there was a sharp epidemic.

Measles shows a marked tendency to increase in the following places: Salem, Chelsea, and Taunton, while in Springfield it is holding its own. It is also present in considerable number in Holyoke, Lawrence, Saugus, Lynn and Brookline.

Whooping cough seems to be scattered over the whole state. The most important points of prevalence are: Springfield, Newton, Lawrence, Winthrop, Framingham, Northampton and Provincetown. In the last named place the disease has been present for a number of months and shows a tendency to increase.

Scarlet fever was present in more than the usual amount in Lynn, Brookline, Leominster, Fitchburg and North Attleborough.

During the month of November, the only epidemic of importance occurred at Ashburnham. Twenty-one cases of typhoid fever were reported between November 7th, and November 23rd. A careful investigation is being conducted by both the state district health officer and the engineering division. This outbreak presents some puzzling features, and at the present writing, the source of infection has not been determined. A detailed report of this epidemic will be published later.

During the month of November, three cases of anthrax were notified. Two of these were in Woburn and one in the city of Boston. Somerville reported one death during the month from actinomycosis.

MASSACHUSETTS GENERAL HOSPITAL CLINICAL SOCIETY.

THERE has recently been organized in Boston a new medical society, the Massachusetts General Hospital Clinical Society, the notice of whose meeting appears this week for the first time on the last page of the JOURNAL, and will appear there regularly hereafter. The purposes of this organization, whose membership is made up of the house staff of the hospital, are to present single interesting cases, groups of cases, historical sketches, pathologic specimens, x-ray studies, and thus to bring together the various services, interest them in one another's work, and encourage reciprocal assistance. The lack of correlation of studies and of scientific stimulus has long been felt among house officers, and it is hoped the new society may meet this want, and that the labor necessitated by it may be a distinct source of profit to individuals.

The meetings of the Massachusetts General Hospital Clinical Society are to be held fortnightly at 7.15 p.m., generally in the out-patient amphitheatre, and the visiting staff, the administration, physicians, surgeons, and students are cordially invited to attend. Meetings have already been held on Nov. 24, Dec. 1, and Dec. 13, with interesting and profitable programs. The attention of the profession is particularly called to this new and promising organization, to which the JOURNAL takes sincere pleasure in extending its cordial good wishes for success.

FRIDAY!

MEDICAL NOTES.

INCREASED MORTALITY IN NEW YORK DUE TO HEART AND KIDNEY DISEASES.—According to the weekly report prepared by the New York Department of Health, there were, during the past week 182 more deaths in the city than during the corresponding week of last year. The heavier mortality from diseases of the heart and kidneys was responsible for most of the above increase, 399 deaths being attributed to these diseases during the past week,—an increase of 106 deaths over the corresponding week of last year. The Department of Health has repeatedly called attention to the increasing mortality from these diseases and has repeatedly urged, as the best safeguard against them, a yearly medical exami-

nation by the family physician. The onset of these diseases is usually so insidious that before the symptoms become sufficiently pronounced to compel one to consult a physician, the disease has often advanced too far to permit of its being cured or even held in check. During the past week there were 1520 deaths, with a rate of 13.66, as compared with 1338 deaths with a rate of 12.15 for the corresponding week of last year. A difference of 1.16 in the weekly rate is equivalent to an increase of 128 in the number of deaths. In other words, while there were actually 182 more deaths, 54 of these are to be accounted for by the increase in the population. The death rate for the first 50 weeks of 1915 is 13.52, as compared with 13.66 for the first 50 weeks of 1914.

THE HOSPITAL STEAMSHIP "STRATHCONA."—The Wilfred T. Grenfell Association in reporting the work of its hospital steamship *Strathcona* from June 27, 1915, to September 27, 1915, states that a total of 958 out-patients were treated, and 27 in-patients. Of the outpatients, 115 had diseases of alimentation and 100 beri-beri, caused by the lack of variety in the diet of the poor fishing people to whom the hospital ministers. During the summer the boat had steamed 2250 miles; towed home (St. Anthony, Northern Newfoundland) five barge loads of wood; twice went to Lewisporte, (Newfoundland) to meet the train; visited all hospital stations: Indian Harbor, Harrington, Battle Harbor, Spotted Islands, Forteau, Paul's River, (Labrador). St. Anthony, Pilley's Island, (Northern Newfoundland), and went to Twillingate to start another hospital.

AMERICAN ASSOCIATION FOR CLINICAL RESEARCH.—The annual meeting of the American Association for Clinical Research was held recently in Philadelphia. The following officers were elected for the ensuing year. President, Dr. Coleman of New York City, vice presidents, Dr. William B. Snow of New York City and Dr. Leon T. Ashcraft of Philadelphia, permanent secretary, Dr. James Kraus of Boston.

UNIVERSITY OF ILLINOIS.—It is announced that a new building is to be erected in Chicago for the clinical courses of the University of Illinois Medical School. Only one wing will be built at present at an initial cost of about \$100,000. The remainder of the building is to be added later as the demand for room increases.

EUROPEAN WAR NOTES.

MASSACHUSETTS RED CROSS SURGEONS IN ENGLAND.—In a recent issue of the London *Lancet* has appeared the following editorial account of a farewell luncheon given in London on October 13, by Sir William Osler to Dr. Howard Beal on the occasion of the completion of the latter's service as chief surgeon of the American Women's War Hospital at Paignton, Devonshire.

"Dr. Beal came over with the first American Red Cross units in September, 1914. The two units, then allotted to England, consisted each of three surgeons and twelve nurses; one unit was sent at once to Paignton; the other was for a time attached to Haslar Naval Hospital, but afterwards it also went to Paignton, and the hospital there then had a staff of six surgeons and twenty-four nurses, with an equal number of British and Australian nurses. Later on Dr. Crumley, of the Mayo Clinic, was attached as pathologist and bacteriologist. Sir William Osler proposed a composite toast to the American women in England who had achieved a fine piece of organizing work at Paignton, to the American Red Cross which had supplied the staff, and to Dr. Beal. Sir Alfred Keogh bore testimony to the admirable work done by the American Red Cross at Paignton, and by the Harvard and other units in France. In the name of the R.A.M.C., he thanked Dr. Beal and the American women in England, who, headed by Mrs. Harcourt and Lady Randolph Churchill, had made the enterprise possible. Dr. Beal gave some particulars of the hospital, stating that it now possessed 250 beds, with 20 others in an isolation block. During the year which had just been completed it had treated over 1900 patients with so much good fortune that it had had to record only five deaths."

Dr. D. Pearce Penhallow of Boston, the successor of Dr. Beal as chief surgeon of the hospital, has recently sent to the JOURNAL an analyzed report of the first one thousand of these cases treated there, representing the discharges from October 1, 1914, to March 14, 1915.

"Of this number 785 cases were surgical, 520 traumatic, and 265 non-traumatic. Of the traumas 445 were wounds, the remainder mostly contusions and sprains. 254 wounds were infected, but only 2 with tetanus, both of which recovered, and none with the gas bacillus. Sixty wounds contained foreign bodies, requiring 51 operations for their removal. There were 115 fractures—7 of the skull, 3 of the jaw, 7 of the clavicle, scapula, or ribs, and 98 of the extremities. Of other complications, haemothorax occurred 12 times and aneurysm once. A total of 179 operations were performed, only 19 amputations among them, of which all but 4 preceded admission. Of non-traumatic surgical conditions, frost-bite headed the list with 144, and defective teeth came second with 21. Amongst 301 medical conditions, only 60 were of infections, endocarditis 19, dysentery 17, rheumatic fever 11. Of non-infectious conditions, bronchitis and myalgia were much the most frequent. Turning to the results of treatment, cure was recorded in 63 per cent. of the surgical and 60 per cent. of the medical cases, improvement in 35 per cent. and 32 per cent., respectively. Only 3 patients died. The average time off duty before admission was 11.4 days and of stay in the hospital 22.8 days. Only 3%

were invalidated out of service, and 54 transferred to other hospitals. The report deserves careful scrutiny, and is to be followed shortly by one on the second 1000."

WAR RELIEF FUNDS.—On Dec. 18 the totals of the principal New England relief funds for the European War reached the following amounts:

Red Cross Fund	\$142,298.92
Belgian Fund	73,023.63
Serbian Fund	58,042.07
Allied Fund	43,975.80
British Fund	41,020.72
French Fund	30,413.76
Armenian Fund	25,309.65
Surgical Dressings Fund	15,211.00
Italian Fund	13,549.69
LaFayette Fund	13,395.99
Polish Fund	9,611.12

BOSTON AND NEW ENGLAND.

THE WEEK'S DEATH-RATE IN BOSTON.—During the week ending December 18 there were 255 deaths reported, with a rate of 18.27 per 1000 population as compared with 264 and a rate of 19.12 for the corresponding week of last year.

A notable difference was a total of 14 deaths from pulmonary tuberculosis, against 24 last year.

There were 43 deaths under one year, as compared with 59 last year, and 83 deaths over 60 years of age, against 67 last year.

Total deaths reported in 50 weeks from January 2 to December 18 were 11,368, against 11,344 for the corresponding period in 1914.

Deaths under one year reported in the same period were 1927, against 1919 for the corresponding period in 1914.

During the week the number of cases of principal reportable diseases were: Diphtheria, 59; scarlet fever, 48; measles, 53; typhoid fever, 0; whooping cough, 42; tuberculosis, 52.

Included in the above were the following cases of non-residents: diphtheria, 9; scarlet fever 9; tuberculosis, 4.

Total deaths from these diseases were: diphtheria, 4; tuberculosis, 14; whooping cough, 5.

Included in the above were the following deaths of non-residents: diphtheria 2, tuberculosis, 2.

Only three cases of typhoid fever have been reported during the past three weeks in this city, which is the lowest morbidity record on this disease since typhoid fever was made a reportable disease, namely, 1881.

HOSPITAL BEQUESTS.—The will of the late Mrs. John E. Hudson which was filed in the Suffolk Probate Court on December 10, contains bequests of \$5000 each to the Boston Home for Incurables and the Boston Nursery for Blind Babies, and creates the Industrial School for Crippled and Deformed Children as residuary legatee.

The will of the late Edward E. Taylor, filed on December 15 in the Suffolk Probate Office,

contains a bequest of \$10,000 to the Laconia (N. H.) Hospital; a bequest of \$2000 to the Florence Crittenten Home; and a bequest of \$1000 to the Boston Floating Hospital.

A SECOND CASE OF LEPROSY.—A second case of leprosy discovered in Boston recently proved to be an old sailor, about seventy-two years of age. He has followed the sea for many years and believes that his present illness was contracted while visiting Asiatic ports. Upon application to the Massachusetts General Hospital for treatment the nature of his disease was discovered. He was sent to the Southampton Street detention hospital and will later be taken to Penikese Island.

FREE WASSERMANN TESTS.—Beginning with January, 1916, the Bacteriological Laboratory of the Boston Health Department will be prepared to examine blood specimens by the Wassermann test for syphilis. Tests will be made each Tuesday, Wednesday, Thursday and Friday. Patients for whom the test is requested should be sent to the Laboratory, Room 1101, City Hall Annex, where the blood specimens will be taken. History blanks will be mailed to any Boston physician on request, and each patient appearing at the laboratory must present one of these, carefully filled out and signed by his attending physician. The Laboratory will be prepared to receive these patients and to collect the blood specimens on Mondays, Tuesdays, Wednesdays and Thursdays, from 2 to 4 p.m. only. Specimens will not be collected at any other time, nor will they be collected from patients coming without a carefully prepared history card. The data required are as follows:

* Patient's name; age; sex; patient's address; civil condition; married, single, widowed; provisional diagnosis; syphilis acquired or congenital; active lesions; stage, (primary, secondary, tertiary); antisyphilitic treatment, (number doses salvarsan, number doses neo salvarsan, mercury pills, number months, number mercury injections); present treatment; physician's name; physician's address.

This test, like all laboratory tests furnished by the department, is without cost to physician or patient.

GIFT TO BOSTON DISPENSARY.—At a recent monthly meeting of the board of managers of the Boston Dispensary, a gift of \$5000 was announced from Mr. Shepard Brooks. During the month of November a total of 10,472 treatments was given at the Dispensary of which 9593 were at the morning clinics and 879 at the evening clinics.

MASSACHUSETTS SURGICAL AND GYNECOLOGICAL SOCIETY.—The annual meeting and dinner of the Massachusetts Surgical and Gynecological Society were held in Boston on December 8. At the afternoon session under the chairmanship of the

*Initials in full will be accepted instead of name and address.

retiring president, Dr. Charles T. Howard of Boston, the following papers were presented:

Dr. Dewitt G. Wileox of Boston, "The Treatment of Pelvic Adhesions"; Dr. Ralph A. Stewart of New York, "A Plea for Better Records in Fractures"; Dr. G. Forrest Martin of Lowell, "Some Phases of Surgery of the Lungs," and Dr. Walter G. Crump of New York, "Surgical Aspects of the Cancer Problem."

At the close of the session the following officers were elected for the ensuing year: president, Dr. H. O. Spalding of Westboro; vice president, Dr. Ralph C. Wiggin of Cambridge; secretary, Dr. Harry J. Lee of Boston and treasurer, Dr. C. Y. Wentworth of Newton Highlands.

Obituary.

EDWARD LIVINGSTON TRUDEAU, M.D.

In the death of Dr. Edward Livingston Trudeau, not only the medical profession, but the world at large, has suffered a loss which it is quite impossible to measure or express in words.

Edward Livingston Trudeau was born in New York City in 1848. He died November 15, 1915, in his 67th year. His parents were both of French descent. As a boy, he grew up on his father's plantation near New Orleans. At the age of eighteen, he returned to the city of his birth intending to enter the United States Navy. His elder brother, however, at that time was stricken with tuberculosis and died within six months. Up to the hour of his death, he was attended by his younger brother, who thus for the first time came in contact with the disease which in later years he fought so long and well.

He entered Columbia University, and later the College of Physicians and Surgeons in New York, from which he graduated in 1871. He entered practice in the city and in the same year married Charlotte Beare. Of their four children, three died: one in infancy at Paul Smith's, another daughter, Charlotte, in 1893, and later Dr. Edward L. Trudeau, Jr. The death of the latter was a terrible blow to his father, who had hoped that the son who bore his name would also carry on his work.

Dr. Trudeau remained in practice in New York City only two years when he began to show symptoms of tuberculosis. His condition was considered a most serious one, and in the minds of his most intimate advisers, he was thought to have but a small chance of living more than six months or a year. Dr. Trudeau, himself, however, felt differently. He determined to go to the Adirondacks which he loved, and in this same year, with his wife, he took up his abode at Paul Smith's, then forty miles from the nearest railway. As soon as he arrived, he be-

gan to improve. He loved the mountains, and had an unbounded faith in the tonic properties of Adirondack air.

At Paul Smith's, he met Dr. Alfred L. Loomis, of New York. The elder physician had long held what were considered most radical ideas concerning the treatment of consumption and had been anxious to give his theories a fair trial. In Dr. Trudeau's case, he met his first opportunity to do this. During the winter of 1873 at Saranac Lake, Dr. Trudeau's health and vigor continued to improve so that in the next year he decided to venture abroad again.

He went to St. Paul, Minnesota, and after a year of busy practice, mostly indoors, again relapsed. He felt that which has been remarked in thousands of other patients who have come to the Adirondacks and gone away again—"the call of Saranac." Since that day, Saranac Lake and Paul Smith's have been between them the home of Dr. E. L. Trudeau.

As before, he was very ill, and hardly fit to take the long journey in a sleigh from Ausable Fork through the wilderness to Paul Smith's. Once again, however, the magic of Adirondack air performed the great miracle and Dr. Trudeau again recovered and his strength increased. He developed considerable practice both among the local residents and the summer visitors, and in 1877 he definitely took up his abode in Saranac Lake. Many of the patients whom Dr. Loomis had sent him, as well as those who had come to him voluntarily, went with him to Saranac Lake.

In 1882, the world was stirred by the discovery of the tubercle bacillus by Robert Koch of Berlin. This was Dr. Trudeau's inspiration to scientific research. Despite his enormous handicaps, he at once entered this new field of work. In 1884, with the advice and encouragement of Dr. Loomis, the first cottage of that which was in due time to become a beautiful sanitarium village,—Trudeau, N. Y., one and a half miles from Saranac Lake,—was erected on the side of Mount Pisgah. This little cottage represented the beginning of a great movement, the influence of which has been felt all over the United States and Canada. There are doubtless over four hundred sanatoria for the treatment of tuberculosis in this country alone that owe their inception directly or indirectly to the influence of Dr. Trudeau and the Adirondack Cottage Sanitarium.

Today, the Adirondack Cottage Sanitarium is a million dollar institution; yet each year it is run at a loss which has to be made up by the generosity of such individuals as have means and are willing to share them for a great cause. The arduous burden of making up this deficit has been borne by Dr. Trudeau despite his physical handicaps. He, himself, has refused to draw any salary as president of the institution.

Today, the Sanitarium at Saranac Lake is recognized as one of the greatest health centers on the American continent for the treatment and cure of tuberculosis. This and the Saranac Lake Laboratory are standing monuments to the greatness of this man.

Among the honors that have been conferred upon him are Master of Science, Columbia University, 1889; Honorary Fellow of the Phipps Institute, 1903; LLD., McGill University, 1904; and LLD., University of Pennsylvania, 1913.

In 1910, Dr. Trudeau was president of the Eighth Congress of American Physicians and Surgeons, held at Washington, D.C. He addressed the Congress on "The Value of Optimism in Medicine." The following paragraphs from this address in Dr. Trudeau's own words express better than anything else his own philosophy in life:

"Optimism is the one thing that is within the reach of all of us, no matter how meagre our intellectual equipment, how unpromising our outlook at the start, or how obscure and limited our careers may be.

"It was about my only asset when I built my first little sanitarium on a remote hillside in an uninhabited and inaccessible region. Viewed from the pessimist's standpoint, that little cottage as an instrument of any importance in the warfare against tuberculosis must have appeared as a most absurd and monumental folly.

"Optimism made me indifferent to neglect and opposition and blind to obstacles of all kinds during the long years of struggle before the value of sanitarium treatment became generally recognized. It enabled me to undertake the culture of the tubercle bacillus and delve in the complex problems of infection and artificial immunization, though I had no knowledge whatever of bacteriology, no laboratory, no apparatus or books.

"Let us not, therefore, quench the faith nor turn from the vision which, whether we own it or not, we carry as Stevenson's lantern bearers their lanterns, hidden from the outer world, and thus inspired, many will reach the goal; and if for the most of us our achievements inevitably must fall short of our ideals, if when age and infirmity overtake us 'we come not within sight of the castle of our dreams,' nevertheless all will be well with us; for, as Stevenson rightly tells us, 'to travel hopefully is better than to arrive and the true success is in labor.'"

To any one who knew him well, Dr. Trudeau presented a varying front. One of the greatest optimists that ever lived, he could now and then be one of the greatest pessimists. His temperament was distinctly French. The marvelous thing is that through all the sufferings of his latter years he could keep up his courage and cheerfulness as he did.

During his latter years, when for the greater part of the time he was confined closely to his

bed, he continued to be a constant source of inspiration to physicians who were fortunate enough to come into contact with him, to friends who had their own burdens to bear, and to patients from all over the world. He has preached the gospel of courage and faith in the eternal goodness of things. He was a friend to all the world, and all the world was a friend to him. No man ever laid down his burden more deserving of rest and the respect of his fellow men.

Miscellany.

ADVANCE IN COST OF DRUGS.

DURING the past month the increase in the price of drugs, which has been noted since the outbreak of the European War, continued its steady progress with regard to all important drugs, with the exception of quinine. Report from New York on November 30 makes the following statements on this subject:

"Most prominent among the price fluctuations in the list of fine medicinal drugs has been a fresh upward movement amounting to \$1.00 a pound in gum, powdered and granular opium. This advance was based on the virtual cessation of all shipments from Macedonia and Turkey, as well as shrinkage in local supplies and continued demand from abroad for all opiates. According to statistics just released by the Government, opium stocks in the United States are shrinking at the rate of close to \$90,000 worth a month. The stock of opium containing 90% of morphia and over in our bonded warehouses on October 1, 1915, amounted to but 47,189 pounds of the value of \$205,680, comparing with 67,687 pounds of the value of \$293,658 on September 1, 1915, 92,997 pounds of the value of \$394,088 on July 1, 1915. There has been no reflection of the additional advance in prices for opium thus far in morphine or codeine, but a much stronger undertone pervades the market, as foreign demand is reaching much larger proportions. Not only is the demand from Europe steadily on the increase, but a demand from Japan has sprung up here of late.

"Bromide preparations have continued unusually scarce in the local market, prices having been maintained at \$5 to \$6 a pound in second hands. All tests of acetic acid from 28% to 99½% glacial have scored sharp advances following an uplift of 50 cents per hundredweight in acetate of lime to a basis of \$5 to \$5.05 per 100 pounds.

"Russian cantharides have scored another sharp advance to \$5 a pound for powdered, while Chinese powdered cantharides have advanced 20 cents and are now being held at \$1.70 a pound, owing to a virtual exhaustion of the

supplies of whole. U.S.P. lac sulphur has risen to 20½ and 21 cents a pound on declaration of an embargo on shipments from Great Britain. South American balsam copaiba is 5 cents higher, at 45 cents per pound; balsam peru has advanced to \$4.75 and \$5; American saffron flowers to 75 cents a pound; Valencia saffron to \$11.25 and \$11.50; true liquid stryax to 45 cents a pound; oil of cloves to \$1.37½; and \$1.42½; bergamot oil to \$3.50; oil of cassia to \$1; juniper berries oil to \$3 and \$4; natural mustard oil to \$14; and artificial to \$9.50; oil of nutmegs to 90 and 95 cents; domestic peppermint oil in bottles to \$2.60 and \$2.65, and oil of patchouli to \$7.50 and \$7.75 a pound.

"So far as carbolic acid is concerned, it is notable that offers during the past three days have been made more freely around \$1.75 a pound basis in drums, and \$1.90 basis a pound in pound bottles. Production of benzol and carbolic acid have both been brought up to their maximum in the United States, according to leading representatives of the manufacturers. The high level for spot goods is maintained owing to the fact that the explosive manufacturers are still taking the bulk of the output.

"Advances in the general list of the Far East drug and chemical products have also been quite general, the most important uplifts having occurred in such natural dye products as gambier, cutch, indigo, nutgalls and turmeric. Spot Aleppy turmeric has practically disappeared from the market. Tapioea, all the grades of cardamom seeds, nux vomica, gum assafetida, mastic, arabic, copal cophrorium, belladonna root, citronella and sandalwood oils, buchu, cannabis-indica, coca, senna and thyme leaves and Levant wormseed have all shown a stiffening tendency of late. The sales of cassias alone in this market have amounted to more than 10,000 pounds, and the same reason for the elevation of prices holds good: to wit, poor shipping facilities and neglect of crops in the primary markets.

"A sensational advance in prices asked for quinine salts was recorded the latter part of October. An advance in the asking price of second hands to \$2.50 and \$2.75 an ounce was the highest figure ever established for quinine since the Civil War. The effect of the sharp advance in prices asked for outside lots was to choke off the demand from Europe, as well as to restrict the inquiries from domestic consumers to such quantities as they would require for their own immediate needs.

"In early November, the British Government, taking cognizance of the sharp reduction in the stocks in London and all other centres, placed quinine on its list of prohibited exports in order to prevent further depletion of its own supplies. Contrary to general expectations, the vital effect of the cutting off of London as a basis for supply of foreign quinine did not result in any fresh flurry in the article. The market in second hands in New York, on the other hand, under-

went a serious reversal, prices dropped to \$1.50 an ounce, but even at this figure the margin over makers' prices was still attractive. In view of the fact, however, that the United States was dependent upon its own production, which is less than 1,500,000 ounces, or only one-half as much quinine sulphate as is annually imported, the prospects for the resumption of normal figures for quinine while the war in Europe continued were regarded as remote.

"Imports of quinine sulphate and all salts and alkaloids of cinchona bark in the first nine months of 1915 to October 1 totalled only 657,611 ounces of the valuation of \$165,247, which compares with 2,069,370 ounces of the value of \$471,318 in the corresponding period in 1914, and 2,565,850 ounces of the value of \$479,760 in 1913. The imports of cinchona bark during the same nine months totalled 3,073,307 pounds of the value of \$453,669, comparing with 3,236,785 pounds of the value of \$438,403 in the same time, 1914, and 2,284,378 pounds of the value of \$479,760 in 1913. The relatively small imports of sulphate in 1915 indicate that the bulk of the quinine consumed here during the past year was manufactured by domestic makers."



THE DOG AS A CARRIER OF DISEASE TO STOCK.

The dog in the country is a useful and pleasant adjunct to the farm, if he be properly controlled and cared for, but when neglected, may readily become a carrier of disease to stock, in addition to gaining opportunity to kill sheep and destroy gardens and other property. Dog ordinances, as a general rule, have been intended chiefly to curb the dog's power of doing harm by attacking, biting, killing or running sheep or stock. The part that he plays as a carrier of diseases to animals only recently has been recognized, according to the zoologists of the Department of Agriculture, who believe that when this is better understood, rural ordinances and laws which lessen this danger will gain the support of the community.

Of the diseases carried to stock by dogs, the foot-and-mouth disease is probably of the greatest interest at this time. In this case the dog acts as a mechanical carrier of infection. The dog which runs across an infected farm may carry easily in the dirt on his feet the virus of this most contagious of animal diseases to other farms, and thus spread the disease to the neighboring herds. In infected localities it is absolutely essential, therefore, to keep all dogs chained and never to allow them off the farm except on leash.

There are, however, many other maladies in the spread of which the dog takes an active part. In Bulletin 260 of the United States Department

of Agriculture, "The Dog as a Carrier of Parasites and Disease," it is pointed out that rabies, hydatid, ringworm, favus, double-pored tapeworm, roundworm, and tongueworm are often conveyed to human beings in this way. It occasionally happens also that the dog helps fleas and ticks in transmitting bubonic plague or the deadly spotted fever.

Hydatid disease is caused by the presence in the liver, kidneys, brain, lungs, and other organs, of a bladder worm or larval tapeworm. Bladder worms are often as large as an orange and may be larger. A dog which is allowed to feed on carrion or the raw viscera of slaughtered animals, may eat all or part of a bladder worm, containing numerous tapeworm heads. These tapeworm heads develop into small segmented tapeworms in the intestine of the dog. The tapeworms in turn develop eggs, which are passed out in the excrement of the dog. They are spread broadcast on grass and in drinking water, where animals can very well eat them, and thus become infected. The hog is particularly liable to this disease because of its rooting habits. The eggs may get into human food, and persons who allow dogs to lick their hands and face also run the risk of getting the eggs of the tapeworm in their systems.

Prevention on the farm consists in so restraining the dog that he cannot get at carrion or raw viscera. Viscera should be boiled before being fed to dogs, and should never be thrown on the fields. If not cooked and fed, viscera and carcasses should be burned, buried with lime, or so disposed of as not to be accessible to dogs. Proper feeding of the dog is essential, and the owner who does not feed a dog properly has no right to keep one.

The parasite which causes gid in sheep somewhat resembles the hydatid worm. A dog allowed to eat the brain of a giddy sheep may swallow this parasite and later distribute the eggs of the resulting tapeworm over the pasture. Sheep, while grazing, swallow the eggs with the grass which they eat. In the case of sheep dogs it is important to administer vermifuges often enough to keep them free of these worms. In the case of sheep measles, the bladder worm in the meat, typical of this disease, is swallowed by the dog, and again the tapeworm eggs are passed by the dog to grass or water, and there are eaten by sheep.

Of the external parasites which dogs may carry to animals, fleas and the various kinds of ticks are both troublesome and dangerous. The remedy is clear. The owner must keep his dog clean, not merely for the comfort and happiness of the dog, but to prevent it from becoming a carrier of disagreeable and dangerous vermin.

These reasonable measures, important to the stock on the farm, have a direct connection with the health of the family. Where ringworm or other skin diseases break out among the children, or the worm parasites develop, it is well to determine whether a dirty or uncared-for dog

may not be carrying infection on his skin or hair, or be conveying disease from carrion directly to the food and persons of his friends. Even if no one is infected with disease, the folly of allowing a dog to remain dirty and have the freedom of a home where personal cleanliness and hygiene are respected, is apparent.



CANCER IN THE UNITED STATES.

DR. BEITLER, Registrar of Vital Statistics, State of Maryland, has prepared some very interesting tables showing the mortality of cancer in the registration area of the United States during the decade 1904 to 1913.

The number of deaths, in the registration area, from this cause has increased from 23,295 in 1904 to 49,928. This corresponds to a rate of over 70 per 100,000 in 1904 and nearly 79 per 100,000 in 1914. Dr. Beitler's analysis shows the steady increase, not only in the number of deaths, but in the death rate in practically all the years of the decade, the increase in the rate amounting to 12.5%, comparing the first with the last year of the decade.

Facts already well known in regard to the prevalence of this disease are clearly brought out in this study: The greater frequency of cancer in the females than in the males; the greater increase in the rate among the males than among the females; no marked increases in the mortality up to the fortieth year of life, after which the death rate per one thousand shows a progressive increase; the greatest number of deaths between the ages of 60 and 70, closely followed by the age-group between 50 and 60.

The most frequent site of cancer shown in the table is cancer of the stomach and liver, from which 31 out of every 100,000 people died in the year 1913. The next in order of frequency is that of the female genital organs, the mortality for which was 12 per one hundred thousand. Cancer of the intestines showed a mortality of 10, cancer of the breast one of seven per one hundred thousand of the population.

The most marked increase is seen in cancer of the intestines. Next in order was the increase of 40% of cancer of the mouth. Then cancer of the breast with 20%, cancer of the stomach and liver with 19% increase.

The conclusions Dr. Beitler draws are that cancer mortality is increasing, that the increase is real, that the question of refined diagnostic methods and the inclusion of border-line cases cannot be a large factor in determining the rates; that it is hardly probable that a physician of a decade ago was so inefficient as not to be able to recognize advanced cancer; that the changes in the composition of the population, that is, in the sex and age distribution, were so slight that the effect on the increase in the specific rates was negligible.

The paper is interesting just at this particular time when the discussion of the increase in the mortality from cancer has taken on a new impetus by reason of the campaign directed by certain scientific organizations.

As pointed out in the *Bulletin* of Nov. 13, the Boston Department of Health proposes in 1916 to make its cancer statistics highly accurate by securing, wherever possible, additional information from the physician in all deaths reported from cancer.

A disease which is responsible for more than five per cent. of all deaths, which appears to be definitely on the increase, and which brings misery and suffering wherever it occurs, demands our serious attention. The Department of Health counts on the physicians of this city to coöperate with it in securing light on the nature and mode of spread of this obscure malady.

Correspondence.

THE PUMP ROOM AT BATH IN SMOLETT'S TIME.

BOSTON, Dec. 4, 1915.

Mr. Editor: Dr. Sunderland's recent book on Old London's Spas, Baths and Wells* reminds us of the graphic description of Bath and especially of the Pump Room, written by Matthew Bramble to Dr. Lewis in the tale of Humphry Clinker. Sir Walter Scott says, (preface to Smollett's works), "The portrait of Matthew Bramble, in which Smollett described his own peculiarities, using towards himself the same rigid anatomy which he exercised upon others, is unequalled in the line of fictitious composition." The letter relates some of the trials and tribulations of getting accommodations at Bath of a suitable nature, and then describes experiences at the bath as follows: "Two days ago went into the king's bath, by the advice of our friend Ch—, in order to clear the strainer of the skin, for the benefit of a free perspiration, and the first object that saluted my eyes was a child, full of scrofulous ulcers, carried in the arms of one of the guides, under the very noses of the bathers. I was so shocked at the sight I retired immediately, with indignation and disgust. Suppose the matter of those ulcers, floating in the water, comes in contact with my skin. I would ask you what must be the consequence? Good heavens! the very thought makes my blood run cold! We know not what sores may be running into the water while we are bathing, and what sort of matter we may thus imbibe, the king's evil, the scurvy, the cancer and the pox, and, no doubt, the heat will render the *virus* the more volatile and penetrating

"But I am now as much afraid of drinking as of bathing, for after a long conversation with the doctor about the construction of the pump and the cistern, it is very far from being clear with me that the patients in the pump room don't swallow the scourings of the bathers. I can't help suspecting that there is, or may be, some regurgitation from the bath into the cistern of the pump. In that case what a delicate beverage is every day quaffed by the drinkers

"The very air we breathe is loaded with contagion. We cannot even sleep without the risk of infection. I say infection—this place is the rendezvous of the diseased—you won't deny that many diseases are infectious, even the consumption itself is highly infectious. When a person dies of it in Italy, the bed and bedding are destroyed, the other furniture is exposed to the weather, and the apartment whitewashed, before it is occupied by any other living soul!"

As Smollett was born in 1721 and died in 1771, and he was undoubtedly quoting from his own experience, his statements bespeak keen knowledge, and a surprisingly advanced position as regards sanitation for the times in Italy. This last statement was undoubtedly the result of Smollett's actual experience and observation in Italy, as he was a resident of that country for some years.

Very truly yours,

WM. PEARCE COUES, M.D.

31 Massachusetts Avenue.

A CORRECTION.

BOSTON, Nov. 17, 1915.

Mr. Editor: I wish to protest against the headline set over the very inaccurate account in the daily press of my recent talk at Evans Memorial. The mistakes in the body of the account are not, most of them, very vital, but to represent me as saying that "nine-tenths of doctors guess" is in the first place false, as I never said it, and in the second place meaningless. If it means that nine-tenths of doctors sometimes guess, it must be true of ten-tenths. If it means that nine-tenths of them habitually guess or guess nine-tenths of the time, as many would suppose on reading the headline, it is in my belief entirely untrue, and very unjust to the body of the medical profession.

I am not trying to contrast hospital physicians with other physicians, but to contrast the treatment which any physician can give, when he has the advantages of hospital laboratories and instruments of precision, with the treatment which that same physician or any other could give without those aids. It is a difference not of personalities but of methods, and I protest against reports which make it appear falsely that I think ill of the efforts and fidelity of most physicians.

RICHARD C. CABOT, M.D.

SOCIETY NOTICES.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held in the Amphitheatre, Building A, Harvard Medical School, December 28, at 4 p.m. sharp.

A symposium on Cancer by members of the Huntington Memorial (Cancer) Hospital staff will occupy the first hour, after which a clinic will be held at the Hospital.

Supper will be served in the Library of the Medical School, Building A, at 6.30 p.m.

BRADFORD KENT, M.D., *Secretary.*

MASSACHUSETTS GENERAL HOSPITAL CLINICAL SOCIETY MEETING on Monday, December 27, 1915, in the Out-Patient Amphitheatre, 7.15 p.m.

1. "Pneumonia in Children, with especial reference to the x-ray as a diagnostic feature," Dr. Darkin.
2. "Medical Experiences in Arabia," Dr. Paul Harrison.
3. Presentation of pathological specimens of exceptional interest.

ELLIOTT C. CUTLER, M.D., *Secretary.*

* Reviewed editorially in the issue of the JOURNAL for Dec. 2, 1915, Vol. clxxiii, p. 854.

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Original Articles.

FOOT STRAIN AND OTHER COMMON FOOT DEFECTS.

BY HERMAN W. MARSHALL, M.D., BOSTON.

[From the Orthopedic Clinic of the Massachusetts General Hospital.]

NUMEROUS disappointments in treatments of common foot troubles occur notwithstanding our extensive knowledge of these conditions; and patients and physicians both are surprised very frequently at unexpected poor results of medical care; yet it seems nearly impossible to discover really new facts relating to feet. The writer believes accordingly that further advances must be made mainly through more careful examinations of what is known now but commonly forgotten.

Foot strain and other defects will be illustrated in this paper by a number of actual cases; and these will be followed by a discussion of the facts presented, concluding with a few revised elaborated general principles of treatment. Numerous photographs are used to facilitate descriptions, several different pictures of the same case being employed when they give added clearness. Soles of feet have been photographed with patients standing on a thick glass plate with a mirror arranged beneath it so as to reflect images conveniently into the camera, thus securing

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weight-bearing positions. Only those facts in each history are reported, for the sake of brevity, that relate particularly to the features being illustrated.

A rough grouping of cases has been made into: (1) Simple relaxations and strains. (2) Rigid flat foot and allied conditions. (3) Foot strain accompanying other distinct pathologic states. (4) Miscellaneous lesions confused or associated with foot strain.

SIMPLE RELAXATIONS AND STRAINS.

Lack of order and completeness in treatment. The first case, Figs. 1, 2, 3, 4, is that of an eighteen year old girl who slowly developed weakness and pain in the feet six weeks before an orthopedic surgeon was consulted. He immediately recognized that the shoes were too tight and that the toes were cramped, also that the feet were relaxed and slightly pronated. Adhesive plaster supports were put on the ankles and larger, better shaped shoes with lower heels were recommended. Figs. 1 and 2 show the slightly pronated relaxed foot with slightly crumpled toes. Fig. 3 shows the original shoe worn, and Fig. 4 the recommended one. The patient returned in two weeks with symptoms increased, having been obliged to give up wearing the prescribed shoes on account of the greater discomfort which they produced. She gave a history on further questioning of recent loss of appetite and weight, and she looked pale and sallow.

New directions next were given to return to the original shoes until local pains subsided, then to change again gradually to the ones recommended. The feet were strapped meanwhile, strappings being changed frequently enough to give continuous support. Tonic-eliminative drugs were prescribed

at the same time and in three weeks she had improved greatly. Her appetite was much better, the pallor of the face had disappeared, she was feeling in better spirits, and foot symptoms had practically gone. In another week she had made the change to the better shoes and was able to dispense entirely with artificial supports.

First observations made in this case were correct ones, but the trouble arose from omissions



1 2

in considering facts later brought to notice; and the enormous numbers of persons who adjust their footwear without proper medical advice obviously owe poor results obtained from arch supports and orthopedic shoes to similar omissions. Treatments must be something more than merely local mechanical ones. General conditions have to be thought of in every in-

stance because a large proportion of all cases of simple strain give histories of overwork, debility, "auto-intoxication" or other vague run-down states which should have medical care to ensure quickest recovery.

Physicians themselves too frequently treat foot strains as mechanical weaknesses, to be supported simply with mechanical props, or they tinker surgically with feet to improve only local structural peculiarities. Such mechanical or surgical methods are necessary for success very often, yet the fact remains that failures which still occur after them originate in neglect of internal medical treatments. The latter correct complex physiologic peculiarities which all patients possess in addition to their anatomic ones.

Too extreme abrupt changes. Tolerance of high heels. The second case, Figs. 5, 6, 7, 8, is a well developed, muscular young woman of twenty-two years. She is a diving girl in a theatrical troupe. Her friends told her that shoes with high heels and pointed toes were bad for the feet, so she purchased some flexible, broad toed, low heeled ones, making an abrupt, extreme change from one to the other. Furthermore, she had been wearing store arch supports in the first ones.

The result of the change was that muscles of feet and legs became very tired with additional continuous work they were suddenly compelled to do, and finally one fatigued ankle was so badly twisted that some of the small ligaments of the foot were injured, ecchymoses appearing beneath the skin. Complete rest in a plaster cast was necessary for a few days; and then, as the patient still desired to try to become accustomed to the better shaped shoes, the feet were firmly strapped and she



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was allowed to walk. She persevered for a month, but finally, owing to the difficulties in obtaining medical attention regularly, she went back to the old shoes with supports. Simple medicines tried in routine manner during the period of treatment produced very little change in her symptoms, as was anticipated, for evidently bad results could be traced easily to the change made from nearly a maximum to nearly a minimum amount of support. Original shoes are figured in 5 and 6, and improved snakes in 7 and 8. This case represents the unskillful use of a very useful kind of footwear, and also exhibits the tolerance which is shown for high heels when feet have become accustomed to them.

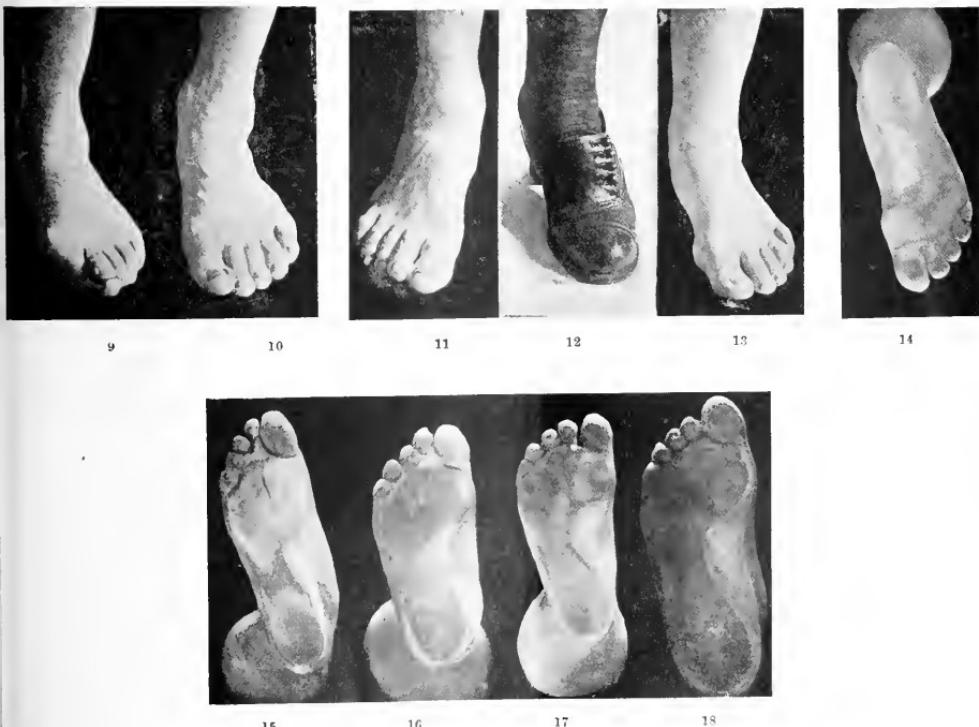
Deformities without Symptoms. Symptoms without Deformities. Figs. 9 and 10 are introduced to show that marked anatomical peculiarities are not necessarily associated with painful pathological symptoms. The fact that pathological symptoms may be present in the absence of great anatomic variations is indicated in Figs. 11, 12, 13, 14.

The foot figured in 9 was declared by the patient to be normal and to have been so for many years. This statement means that structural peculiarities developed so gradually that functional changes compensated perfectly for anatomic ones without destroying at any time the usually healthy

balance. It shows that symptomless hallux valgus is possible since this man is at work regularly, using the feet an ordinary amount. The flattened, pronated foot in Fig. 10 is symptomless, while the other foot of the same person, Fig. 11, although better looking, is weak and painful from an old injury.

The foot and footwear figured in 12, 13, 14 appear fairly good, yet acute symptoms of several weeks' duration were complained of. The foot is somewhat pronated, but not more so than many average symptomless feet, the toes are not crumpled, the longitudinal arches have not sagged much and the shoes are of good shape and size. There are many feet of worse appearance in which no symptoms are noticed, and it seems this case fairly presents pathologic symptoms without marked anatomic peculiarities.

Variations in Shapes and Sizes. "Normal looking" is a term frequently used loosely in descriptions of feet, but it possesses limited significance when long narrow types, Fig. 15, short broad ones, Fig. 16, unusually developed feet, Fig. 17, and variations in sizes, Figs. 17, 18, are noted. The photographs were taken at the same distance from the camera under similar conditions and are directly comparable. All these might be called fairly normal looking, and they demonstrate that there are wide individual variations in shapes and sizes which



should be recognized as individual peculiarities with very little pathologic significance.

Foot plates in simple relaxations and strains.

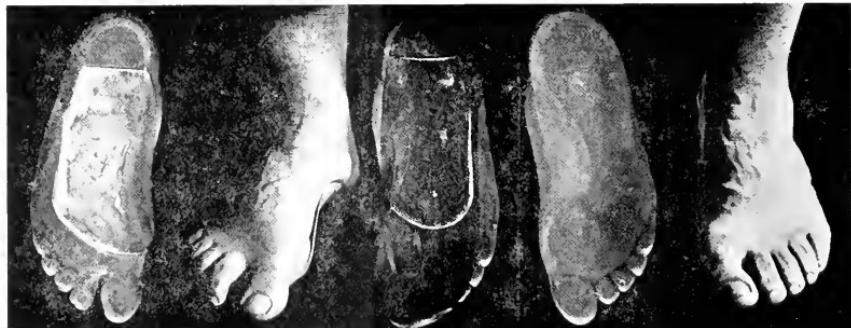
(A) A man desired some new plates to replace old ones which he had worn and broken. Figs. 19, 20, 21, 22, 23. He was six feet, four inches tall, weighed over two hundred and fifty pounds, was middle aged and worked in an iron foundry. His feet were large, relaxed, and flattened as shown in 22 and 23. Impressions of the feet were taken and a pair of low, flat plates were made. Fig. 21. These unexpectedly proved very uncomfortable, because they forced up transverse arches too much and did not afford enough support at inner edges of the feet. They had to be discarded in spite of much tinkering and after considerable perseverance from the patient. A second pair was made which proved entirely satisfactory. Figs. 19, 20.

The difficulty in this case was the failure to inquire sufficiently at first about plates which had been broken, as later it was found they had supported him just as did the last pair made.

The subsequent history of this patient was as follows: He was cautioned against unnecessary use of foot supports and advised to get accustomed to the lesser support afforded by the discarded flat plates. This he succeeded in doing in two months,

and then at this rather late date it was observed he was pale and anaemic looking although of unusual muscular strength and of large stature. Medicinal tonics were prescribed and these seemed to hasten his recovery appreciably, for in another month he was feeling much improved in health and had discarded all supports.

(B) A middle aged woman of average height and of slightly more than average weight first tried foot plates, then very flexible shoes, and finally shoes with moderately stiff shanks, yet still continued to have foot symptoms. Figs. 24, 25, 26. Like many other persons, she came for advice, desiring something new in way of treatment, but she was relieved soon by usual methods. First, she had consulted a well known orthopedic surgeon a year previously who fitted plates shown in Fig. 24. These relieved her and she passed quickly from his care. She continued to wear the supports for several months until they began to feel uncomfortable, instead of discontinuing them as soon as possible when the strain had subsided. She bought shoes with very flexible shanks next, and found the additional exercise they gave the feet after long continued support was beneficial for a few months. Finally, the feet grew less comfortable in flexible shoes, and stiffer ones were procured, Fig. 26, which served well for a few more months; but at last she came for advice again with a history of



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mild chronic gastro-enteric trouble, recent over-work and with a sub-acute exacerbation of the digestive disturbance. Internal medical measures were then prescribed that had been successfully used previously in relieving similar gastric distress, and the feet were strapped. She was told to return to original foot plates until foot symptoms subsided, but to stop wearing them soon and to continue with moderately stiff shoes. She was also told to expect a return of foot symptoms whenever she became tired out for protracted periods, run down and her digestion upset. It was explained to her that vascular peculiarities probably undermined healthy conditions of the feet at such times and weakened them whether plates were worn or not, also regardless of special kinds of footwear. She responded promptly to strappings, plates and medicines, and within a few weeks needed no further care.

(C) A slender, rapidly growing girl of thirteen wore plates for twelve months continuously and had a recurrence of foot strain at the end of her school year, Figs. 27, 28, 29. She wanted to know what to do when her arch supports were no longer satisfactory. Examination showed the slender feet slightly relaxed, Fig. 28, and the shoes large enough and of fairly good shape, Fig. 29. The steel plates were made of very light spring steel, Fig. 27, and were doing their work just well enough. The treatment suggested was rest accompanied with a few simple hygienic regulations, and the feet were temporarily supported with straps. She was told to change neither plates nor shoes, and that presumably she would need artificial supports for some time while she continued to grow rapidly. In three weeks her symptoms had subsided and she did not discard the plates which she had erroneously judged to be worthless.

(D) A middle aged woman had very badly relaxed feet. She had drooping shoulders, poor posture and was generally relaxed although of average stature and weight. She had been in this debilitated state for many years. Fig. 30 shows her foot without weight, and Fig. 31, with weight upon it. The feet were strapped and tonics prescribed but their good effects were transitory. These treat-

ments did not compensate long for very bad personal care the patient took of herself. Pains in the heels were complained of, and felt pads were adjusted with a little temporary relief. Low, flat plates, similar to Fig. 24, were made and readjusted several times, but they caused pain in the calves of the legs when too low, and when raised produced

strain of the plantar fascia resulting in pains in the heels. The patient was told by a number of orthopedic surgeons that she must endure some discomfort but she finally consulted another orthopedist who fitted Whitman plates successfully which the writer figures in 32. These have given complete satisfaction for many months, but it must be added that the patient's general condition also has somewhat improved so that some credit must be given improved vascular states for good results seen.



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(E) A middle aged woman who has been obliged to work very hard under poor hygienic conditions has chronically relaxed feet. Figs. 33, 34, 35. She has been through an experience similar to the preceding patient, has had made for her low, flat plates, also Whitman plates, and has tried special shoes, felt pads and straps. The most important prescription, proper regulation of personal hygiene, was impossible for a long time and consequently she has hobbled around at her work with the feet firmly bound up in adhesive plaster, because this method of treatment has afforded most comfort for many months. Finally the needed rest was secured and new Whitman plates recently fitted are proving satisfactory.

Flexible Shoes have been considered among the cases given and do not require further illustration. They may be beneficial or harmful, depending on the skill and understanding shown in their prescription. They are physiologic opposites of plates, and the same comprehensive handling is needed with them as with the latter.

RIGID FLAT FOOT AND ALLIED CONDITIONS.

It is impossible to discuss rigid flat foot very satisfactorily when so little is known of underlying vascular peculiarities which produce these conditions. We have no means of measuring clinically the quantitative variations occurring from time to time among all numerous constituents of blood plasma, although physiologists have demonstrated in blood of animals temporary variations among circulating food substances immediately after meals; and although it is possible now with rather complicated clinical tests to ascertain proportions of a few substances like circulating urates in given samples



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ments did not compensate long for very bad personal care the patient took of herself. Pains in the heels were complained of, and felt pads were adjusted with a little temporary relief. Low, flat plates, similar to Fig. 24, were made and readjusted several times, but they caused pain in the calves of the legs when too low, and when raised produced

of human blood. The very large majority of quantitative proportions, however, have yet to be found among numerous waste products, food substances, intermediate chemical combinations and internal secretions present in this vascular soil, upon which all tissues depend directly for their health and growth.

All that can be said at present is that there may be some additional substance, or group of substances, or some unusual proportion of an ordinary constituent, in circulation in rigid flat foot which produces irritations of synovial membranes and increased stiffness in the muscles. There are no methods of telling surely whether muscle spasm in such instances is a simple reflex phenomenon, or is due directly to influences of circulating substances upon muscles, or whether there are combinations of these two theoretical possibilities. We do know, however, that circulating bacteria, lodging and developing within joints, will set up inflammatory changes and that the latter may produce joint adhesions. It is a well known fact also that there is often increased reflex spasm in muscles controlling inflamed joints. It seems not improbable, therefore, sometimes that a group of bacteria, or their toxins, may be causative agents in rigid foot conditions. Different grades of virulence in bacteria and in bacterial products are recognized, and make it easy to account theoretically for all the many varying degrees of stiffness which are found clinically in feet, as the latter are affected by these variable irritants. At times there appear to be selective actions in these unrecognized substances, or special lowered resistances in certain groups of muscles and ligaments, that result in some parts becoming more affected than others. This is the case in spasm of peroneal muscles, also in osteal changes at insertions of Achilles tendons and plantar fasciae, where calcifications and spur formations frequently occur, as will be shown later. Fig. 63. Discussion of selective actions of circulating substances and resistances of particular tissues, however, cannot be entered upon in this paper.

We know only that some feet gradually become painful and stiff instead of becoming painful and pathologically relaxed, also that rigid types often run longer courses than mild simple relaxations. Benefits are derived in rigid states from protective strappings and supports, as in

relaxed ones, but in addition there often are needed in rigid types ether manipulations to break adhesions and to restore normal positions. Plaster casts are required too for complete rest and to preserve corrected positions. Local spasms of peroneal muscles have been treated by divisions of peroneal tendons to prevent increasing deformity, but underlying causes are not influenced by this method.

Two cases only of rigid feet are figured because photographs resemble so closely the relaxed conditions already shown.

(A) The first is a school girl of fifteen years whose feet gradually stiffened and became painful. She is a strong, healthy appearing girl and no etiologic factors for her troubles have been discovered. She recovered completely in six months' time with the aid of supportive strappings, and with foot plates and tonics. Figs. 36 and 37 indicate the appearance of the feet, showing that they exhibit very little pronation. Motions of the feet in all directions were considerably limited, and there was stiffness in both lower legs and in both feet, but no evidence of spastic paralysis of central origin.

(B) The second patient is a woman of sixty, with rigid flat foot of several years' duration. Peroneal muscles are affected more than others but all are involved. There is a moderate varicose condition of the veins and longitudinal arches have sagged. Figs. 38 and 39. Strappings and foot plates together make this patient so comfortable that she prefers them to an ether manipulation and plaster casts. She has been given tonic drugs and eliminants with slight benefit.

(C) An interesting condition is shown in Fig. 40. This young girl of sixteen had a very flexible relaxed foot until she twisted the ankle severely twice, thus setting up a chronic inflammation. Marked tenderness and some abnormal swelling are present now over the external malleolus. These pathological symptoms probably indicate strained or torn ligaments for x-rays show no bony defects. The muscles, although weakened and relaxed, respond quickly still to protect the ankle, as the tightly contracted extensor tendons indicate in the photograph. They tighten quickly and relax again immediately when shifting strains upon the ankle due to motions of the body cease.

The differences between muscular action in this last traumatic case and sluggish changes of tense muscles in the first mentioned rigid flat foot ease are so obvious, that it requires very slight imagination to picture some circulating ir-



ritant in some cases acting upon joints, or muscles, or their controlling muscular nerves, to produce continuous increased muscular tenseness. The same tonic-eliminative medicines do not have as marked effects in treatment usually as they do in relaxed debilitated conditions, yet they have been prescribed with considerable benefit apparently in some instances. There seem to be no good reasons, moreover, why attempts should not be made to put circulating blood into best possible condition in these rigid types as well as in debilitated persons; and, when simple routine measures fail, why consultations also with medical internists should not be made freely to secure correction of difficultly regulated vascular tendencies.

FOOT STRAIN ACCOMPANYING OTHER DISTINCT PATHOLOGIC STATES.

Infantile paralysis often leaves patients with foot deformities which require leg braces and surgical operations. These special methods of treatments cannot be discussed, but foot plates are frequently used also to redistribute pressures and to assist in restoring foot balance. Plates are used besides to minimize static strains and to increase the comfort of patients with progressive deforming arthritis, and after fractures of leg and ankle bones.

(A) A case of infantile paralysis in a young woman of eighteen is seen in Figs. 41, 42, 43, 44, 45, 46. She previously had her foot deformity partly corrected by operation, and since then with assistance of the plate figured in 43 and 44, can walk several miles and dance as much as desired. The appearance of the supported foot in a low shoe is shown in Fig. 46.

(B) A case of arthritis deformans in a woman of fifty is shown in Figs. 47 and 50. This patient is able to walk as much as needed for management of a home and the care of an invalid woman of eighty who depends wholly upon her. She finds that plates with flanges, figured in 48 and 49, help to make her walking much easier.

(C) A case of fracture of both leg bones above the ankle, followed by an open operation with bone grafts is shown in Fig. 51. The swelling had not entirely subsided when the photograph was taken and the ankle was then being supported with adhesive plaster straps. A plate was fitted to this foot to relieve new strains developing from unavoidable slight changes occurring in anatomic relations after the injury. This plate will be worn until new compensatory changes in bones, ligaments and muscles can take place slowly and until a new normal balance is thus established.

(D) Figs. 52 and 53 show the pronated feet of a middle-aged patient with cardio-renal trouble. The ankles of this individual frequently become edematous and circulatory disturbances aggravate tendencies toward pronation of the feet. Low flat plates were fitted successfully almost immediately when advice was sought, because of the chronicity of the cardio-renal trouble with the probability in consequence of continued foot weakness.

(E) Hallux valgus deformities are represented in Figs. 55, 56, 57 and 58. This topic is more or less concerned with foot plates, and it also is a common defect that cannot be dismissed without brief mention of advantages and limitations of operative measures. A young man of thirty wears shoes of good shape and size, yet shows symptomless hallux valgus in his left foot. Fig. 55. The right foot is seen in Fig. 54 with very little deformity. There have been no symptoms complained of and also there is no bursitis over the great toe. He can work regularly without any difficulty and is ordinarily



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active on his feet in spite of the anatomic defect. He was told there was no urgency in his case if he didn't desire to have surgical treatment now; and that he could safely wait until the foot troubled him.

A middle-aged woman had feet with painful bunions, the latter being of several years' continuous duration and they had resisted protracted treatment with the usual bunion pads. The feet are shown in Figs. 57 and 58. She was advised that she should have an operation immediately to straighten the toes and have the bursae surgically treated at the same time; but that afterwards she might need plates to hold the anterior arches of the feet properly if heads of first metatarsal bones were removed. Long duration of symptoms was the deciding factor in this instance.

Fig. 56 shows a hallux valgus condition in a patient suffering with arthritis deformans (atrophic

arthritis, rheumatoid arthritis). This foot, and left one of the same individual, Fig. 47, were operated on eight years ago and both great toes were straightened. Further slow contractures of muscles resulted, however, in considerable recurrence of the original deformity, yet this patient is convinced that the operation was a distinct benefit because there has been less pain in the feet since; and she can walk fairly well now with plates in spite of the deformity.

(F) Finally, relations between poor postures and foot strains deserve notice. Persons with drooping shoulders, relaxed back muscles and prominent abdomens frequently complain of foot pains as well as back aches. Such relaxed postures tend to make individuals stand with thighs rotated outwardly slightly more than usual, and with toes in consequence pointing outward to undesirable degrees.



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Toeing outward shifts the pressure of body weight upon the feet inward toward their inner edges and increases the strain upon longitudinal arches, with the result that painful symptoms at times develop.

Another good explanation for associations of foot strains with faulty postures lies in the reasonable assumption that circulating blood of poor quality affects muscles and ligaments of feet the same as it does back muscles and ligaments, and that parts which happen to be the weakest succumb first. Clinical observations harmonize with this view, and there are instances in which foot symptoms are followed by back involvements, or vice versa, back aches followed by foot pains, according as muscles in the one locality are more or less resistant than muscles of the other part; also of back aches or foot strains occurring independently of each other when backs and feet show still greater relative differences in their healthy vitalities. Both explanations should be accepted, and in the ease figured in 59, 60, 61, 62

local supports, exercises, and medicinal tonics were prescribed.

The patient is a middle-aged woman who has complained of back weakness for many years, and recently this abruptly increased, while simultaneously foot strain was noticed. The spinal-abdominal support figured in 59 felt very comfortable when it was fitted and relieved back weakness immediately. The feet were made comfortable with temporary strappings, and tonic-eliminative drugs were administered. Within a few weeks foot-strain passed away and the back felt the best it had for years. It will be noticed in the photographs that the back support probably does not change the positions of abdominal organs very much, and it happens also there has been relief of foot symptoms without great change in the habitual position of the feet, so that the second explanation given above appears in this case perhaps more important than the first mentioned one. The outwardly turned foot of the

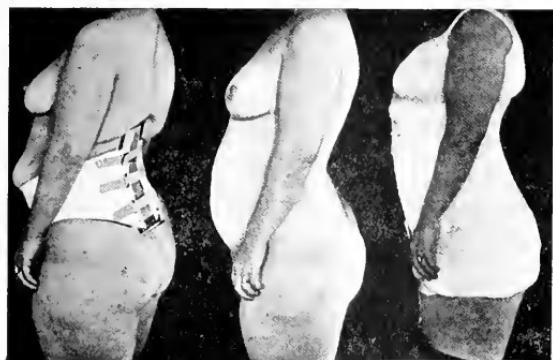
patient is shown in Fig. 62. Fig. 61 shows the patient's appearance with usual corsets previously worn readjusted over with brace pictured in Fig. 59. In all simple relaxations and strains of the feet, examinations of postures therefore should be made and treatments prescribed for backs when necessary on account of etiological relationships existing between them and foot defects.

MISCELLANEOUS LESIONS CONFUSED OR ASSOCIATED WITH FOOT STRAIN.

(A) Spurs of the os calcis sometimes are accompanied with painful symptoms, as is well known, and may be confused or associated with static foot strains. Fig. 64 shows a spur of considerable size without symptoms in a healthy man of forty-one years. This patient had his foot injured in an automobile accident, and the x-ray incidentally revealed the peculiarity in the heel, but there was no tenderness upon pressure over the projection. Fig. 63 shows a heel with less bony change at insertions of plantar fascia and of the tendo Achillis. These have been accompanied by painful heel symptoms of mild degree for two years continuously. The patient is a rather heavy woman of fifty years and she has worn arch supports without benefit. Operation was advised immediately in the latter instance and delayed in the first one until pathological symptoms make their appearance.

(B) Figs. 65, 66, 67 deal with hypertrophic bone changes in the first metatarso-phalangeal joint of a middle-aged woman. She had worn tight shoes for many years, and without apparent cause the left foot gradually became sore in a small spot between the first and second toes. The condition was first thought to be a simple anterior arch strain, but x-rays revealed bony changes shown in the illustration. See semi-circular space of Fig. 67. Palpation also showed a small tender indurated lump concealed between the toes in a location corresponding to the bony lesion. Small felt pads placed below and between the toes protected the tender region, and broader shoes were recommended. The front of the foot was snugly strapped meanwhile until it became slowly accustomed to the increased space, for the patient was quite helpless and unable to walk barefoot, on account of increased pain when the foot was not supported. Fig. 65 shows the x-ray of the corresponding joint of the normal right foot, and Fig. 67 is a photograph of the affected left one. The nature of this pathological process is very obscure, but undoubtedly continual wear of tight shoes furnish an important mechanical element, and there may be some infectious factor, as the tender indurated lump in the soft tissues suggests.

(C) Locations of infectious processes vary, as is illustrated by the feet figured in 68 and 69. The right one is symptomless, but the second metatarso-phalangeal joint of left one has been nearly rigid



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for several years, and the patient has recently had pains in the front part of this foot and calf of the leg. Plausible etiologic factors in this case are many carious teeth, since painful symptoms have subsided after dental care combined with local mechanical supports, and the stiff toe has become somewhat more movable.

(D) Skin lesions have to be mentioned as being confused by patients with pains of foot strains. Burning sensations associated with chronic inflammatory processes in the skin frequently are thought to be flat foot and also the painful pressure of calluses is sometimes attributed to foot strain. Fig. 70 shows an extensive callus of the front part of the foot protected by an adjustable leather cuff with attached felt pads to take the pressure off tender areas at heads of metatarsal bones.

DISCUSSION AND CONCLUSIONS.

Data enough have been given to indicate numerous details which must be memorized by the thorough practitioner, since any of them are liable to enter into the next case presented.

Errors commonly observed are those of patients or physicians who conclude, for example, that flexible shoes are harmful because some persons are made worse after their use while other patients are benefited by use of foot supports; or oppositely, that plates are bad because they do not relieve some individuals who are helped by exercises. Mistakes in these instances consist in comparing things which are unlike each other, and instead successes of one method logically should be compared with successes of the other, also failures with other failures. In addition, it is unjustifiable to compare supports with exercises because they are physiological opposites. They complement, not duplicate, each other's action in treatment. They are not antagonistic to each other, as some imagine, because different; and both are needed very frequently before normal functions are completely restored.

Another common error is to place so much emphasis on certain features, broad toed shoes and low heels, for illustration, that other facts are obscured which should enter into consideration. There can be no doubt that broad toes and low heels are ideal styles for persons who have never worn shoes; but in fairness it must be ad-

mitted that the majority of women still wear moderately high heels and shoes without extreme toes. They do this with less discomfort perhaps than the smaller group of women who are obliged from foot strain to wear more correct styles. Considerable maltreatment is compatible with continuance of normal foot functions in the large majority of persons, because compensating functional changes occur which offset slightly unfavorable conditions imposed by faulty foot wear. Eventually such defective conditions slowly become more comfortable and normal than original ones, when bones, muscles, and ligaments have accommodated themselves long enough. Efficiencies of the feet are lowered somewhat by these changes, yet they are good enough still for all practical uses; so that we should hesitate about making too radical changes in long accustomed styles of foot-wear of persons of middle age and past, when their foot symptoms are not very severe nor of long duration.

Misconceptions of the relative importance of anatomic and physiologic foot peculiarities perhaps are commonest and most important errors encountered. Anatomic peculiarities can be recognised at a glance, or if hidden, they are convincingly revealed in x-rays. Physiologic peculiarities on the other hand cannot be estimated readily, namely, the healthy vitalities of synovial and subcutaneous tissues, cartilage, bone and fasciae, as these various tissues resist mechanical frictions, strains, heat, cold and traumatic influences to which they are subjected. Physiologic peculiarities, strengths of muscles, tissue resistances, etc., are all dependent closely upon variable conditions of blood and lymph, but variations in vascular proportions from time to time unfortunately are almost entirely unknown.

In practice, naturally, therefore, intangible unknown physiologic peculiarities are easily forgotten or disregarded, and attention instead soon is directed entirely to easily understood structural variations. This error is of fundamental importance, having direct bearing on surgical procedures, internal medical treatments and orthopedic appliances. It creates strong tendencies toward unnecessary fitting of mechanical braces, toward too much surgery, and toward



over-estimation of the importance of anatomical features with corresponding underestimations of functional aspects of each problem.

Correct conceptions recognize complementary natures of anatomic and physiologic factors, that they are combined always with each other to produce the balance of health, and that they give rise to widely variable degrees of good health and ill health. Average good health always is a matter of balance between the two, and is possible with marked structural variations in the feet amounting even to deformities, provided there are also compensatory strengthenings and functional changes in foot muscles and ligaments. Figs. 63 and 64 prove conclusively that anatomic variations independently furnish no reliable indications of pathologic symptoms. In Fig. 64 the greater structural peculiarity is unassociated with symptoms, while the slight one in 63 has been accompanied by continuous tenderness and pain for many months. This does not contradict the statement, however, that the greater the anatomic defects are, the more severe will be the pathological symptoms produced, other things being equal. The truth simply remains that these other things vary so much in such subtle unrecognized ways that anatomic defects alone become unreliable indicators of symptoms.

The problem of what shall be done with obscure functional factors, which cannot be measured, yet which are so important because ever-present, has to be solved by indirect means except in a few instances where direct measurements are possible, as with muscle strengths. Osgood* and others have shown that measurable changes in muscle strengths do occur, that in foot strain there are relative weaknesses in muscle groups acting as foot adductors: but these interesting observations are about the only important physiologic studies that have been made upon feet.

All physiologic peculiarities, including muscular ones, can be treated and roughly diagnosed at the same time, however, from results of treatment, when hygienic regulations and drugs are tried in therapeutic-diagnostic ways; for, despite the impossibility of determining functional peculiarities or vascular proportions directly, yet pharmacology and human physiology respectively indicate physiologic action of drugs, and relations between organs. It is very simple to administer a few selected reliable medicines of well-known action in routine manner, and to stimulate well recognized physiologic activities of different organs, thus eliminating from circulation accumulated waste products and other unknowns which cannot be clinically identified; and when the blood has been kept in good condition continuously for a few weeks the tissues begin to respond noticeably to their improved environment and pathologic symptoms begin to abate.

Details of drug administration cannot be entered upon in this paper, but practically it has been found that simple tonic-eliminative measures accelerate relief of many foot defects, as they also do other orthopedic troubles; and foot strains should not be thought too trivial to be treated according to best medical principles, if there are to be any differences between medical care and haphazard purchases at stores of plates and shoes.

Abnormal symptoms are most reliable criteria by which to judge the lack of balance between physiologic and anatomic peculiarities. Feet should not be treated because they are flat simply, as some of our best athletes have symptomless flat foot; nor is it necessary to operate upon symptomless hallux valgus deformities or os calcis spurs because of anatomic considerations alone. Great severity or long duration of pathological symptoms occasionally present indications for immediate interference when structural defects are almost negligible, excessive use under average anatomical conditions being the principle causes in some of these instances.

Another error seen in practice in the furnishing of too much artificial support for weak feet, or giving right amounts of support for unnecessarily long times, thereby weakening muscles and ligaments from disuse.

Patients are fitted frequently with foot plates, but have no directions given them about discontinuing supports when symptoms have been relieved. Feelings of weakness noticed when plates are first removed, after having been worn for considerable periods, make such patients inclined to continue the use of plates to the detriment of the strength of their feet. This should be avoided by explanations made at the outset. An illustration has been given in the foregoing records with its natural outcome, e.g. the trial of flexible shoes.

Controversies have arisen over respective merits of low flat styles of plates shown in Fig. 24, and the balanced variety represented in Fig. 32, the latter being originally devised by Whitman. Both styles possess merit. Flat plates give enough support for relief in a large percentage of cases, as their successful, wide use demonstrates. They are more easily fitted than balanced types, but the latter prevent pronation and hold longitudinal arches more perfectly than low firmly set supports. Balanced types of plates can be made very comfortable, or purposely slightly uncomfortable so that they exercise foot muscles through variations in balance. Muscles will draw up inner borders of feet away from points of uncomfortable pressure of plates if the right degree of balance in the latter are secured. Balanced plates relieve successfully some very badly pronated flexible feet which cannot be held satisfactorily with other supports, but they are not entirely free from faults and may be improperly used to strain

* See Bibliography.

muscles which are already overtaxed. At other times, when made with more comfortable balance, they occasionally afford really more support than is needed, and so tend to produce weakness or disuse more rapidly than less perfectly fitting flat plates.

When feet have been unnecessarily supported for long periods, plates gradually feel harder and harder as muscles functionate less and less. Flexible shoes which exercise the feet, or special foot exercises then will relieve these symptoms due to over-support. Exact degrees of artificial aid necessary from time to time will be seen to be variable quantities, depending largely upon muscle strength and muscle tone; and since muscles respond closely to variations in blood from time to time the extreme importance of keeping blood continuously at its best quality can be readily understood. In chronic debilitating diseases much artificial support is required, while in early healthy adult life none should be needed. The only fixed principle in practice with regard to supports is the one of determining and prescribing minimum amounts which are adequate for relief of symptoms in the particular stages presented. Abrupt extreme changes from very great to very little support are mistakes commonly observed, which it is hardly necessary to say should be avoided.

This paper has been prompted by the writer's experience in the Orthopedic Out-Patient Department of the Massachusetts General Hospital. To this clinic come great numbers of patients with foot troubles, who exhibit widest varieties of conditions, and among whom previous treatments have been variously good, bad, or indifferent. There are neglected cases and overtreated ones, selfdirected cases, cases treated by so-called "foot-specialists," connected with shoe stores, and patients who have been in the care of medical practitioners. Efforts are being made continually by members of the clinic toward improving the efficiency of the department as much as possible under the imposed circumstances of limited time and many patients; and it was from study of the great variety of conditions exhibited in this wealth of clinical material that conclusions and general principles herein presented have been largely drawn, which are applicable in general practice.

GENERAL CONCLUSIONS AND PRINCIPLES OF TREATMENT.

1. Avoid routine use of any single special method.

2. As a starting point, observe the kind of shoes worn; pathological signs and symptoms in the feet; the amount of use of the feet demanded; the state of health and its recent changes; the past history and treatments; and then, proceed gradually to make necessary alterations and prescriptions in careful manner.

3. Remember that treatments have to be ended skillfully as well as begun properly, and ac-

cordingly discontinue the use of plates, straps, medicines, etc., at best times.

4. In simple relaxations and strains, or in rigid flat foot, support the feet with adhesive straps at the onset and simultaneously prescribe suitable tonic-eliminative drugs. Later, from responses to those two measures, and after taking into consideration all circumstances and social conditions of patients, continue with strappings, make changes in shoes, fit plates, prescribe special foot exercises, or suggest ether manipulations, plaster casts, etc., as seems best according to physiological requirements of each successive situation.

5. Do not exaggerate the importance of easily recognized anatomic defects nor underestimate equal values of obscure physiologic peculiarities. Remember that all patients have vascular systems; that possibilities of blood variations have to be dealt with in all cases, and many times are only ways of attacking physiologic defects, furthermore, that regulations of vascular defects sometimes are simple although defects themselves are complicated or unknown.

6. Avoid unnecessary surgery, and too much treatment with orthopedic appliances, by taking into account first always the severity and duration of abnormal symptoms; and by remembering that pronounced anatomic peculiarities often are compatible with continued normal physiologic activities.

7. Treat special foot diseases in appropriate special ways.

8. Whenever there are recurrences in underlying causes of foot strains, or other defects, as quite commonly happens at irregular intervals, there are likely to be recurrences also of pathological foot symptoms. These must be expected in some instances, and decisions made then between repetitions of former successful methods and trials of novelties of uncertain merit. Much can be said in favor of adhering to well-tested efficient methods in preference to experimenting too quickly with doubtful new variations. Patients ought to understand the situation.

9. Explain to patients the limitations and possibilities of comprehensive methods and of single special ones sufficiently for them to understand the necessity of the former for best results, although they may be complicated and include a number of different stages. Demonstrate the inadequacy of any single method of treatment, old or new, in fulfilling the various requirements, likely to be met, and which shift from time to time in the same person. Make it clear that these common and comparatively trivial foot troubles require nearly as comprehensive understanding for their skilful treatment as serious orthopedic conditions in other parts.

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The Prevention of Foot Strain. *BOSTON MED. AND SURG. JOUR.*, Mar. 13, 1913.

THE PROGNOSIS OF INCIPIENT SENILE CATARACT.*

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To the lay mind the diagnosis of cataract is equivalent to a sentence of certain blindness at no very distant date. Unfortunately this opinion prevails with many medical men who have not given special attention to the eye. It is the purpose of this paper to show that a much more optimistic prognosis is justifiable. The importance of correcting this misconception can hardly be over-estimated. The definition of the word in the Standard Dictionary is "an opacity of the crystalline lens of the eye or its enclosing capsule resulting in complete or partial blindness." This is certainly a terrible doom to contemplate, and in many instances has induced great despondency and even melancholia. While the definition is true of the progressive type it is not true of a very large percentage of cases, the

formed, the older ones are squeezed together in the centre, gradually forming a nucleus, which increases as age advances, finally forming a hard centre. The enveloping substance is called the cortex. There is no definite line of separation

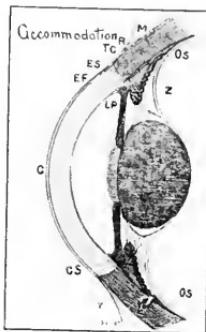


FIG. 2 (Landolt.)
Anterior portion and ciliary region of the eye. *C*, cornea; *eS*, Schlemm's canal; *Os*, ora serrata; *Tr*, tendinous ring; *m*, meridional fibres; *r*, radiating fibres; *c*, circular fibres of the ciliary muscle; *z*, zone of Zinn. The full lines indicate the crystalline lens, iris, and ciliary body in a state of rest; the dotted lines show the same in a state of accommodation.

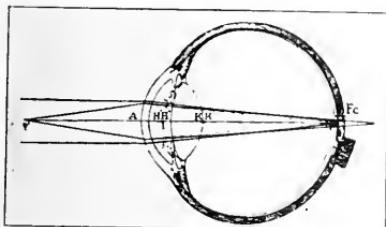


FIG. 1. (Landolt.)

Schematic eye. *o'* Anterior or first principal focus; *a*, anterior surface of the cornea; *H'* and *H''* principal points; *K'* and *K'''* nodal points; *o'''* posterior or second principal focus; *F.c.*, fovea centralis; *o''*, optic axis.

non-progressive type, for whom this is a most cruel misconception.

The eye is a most highly differentiated sense organ and the lens unlike any other tissue. It is double convex in form, 5 mm. in thickness and 9 mm. in diameter, situated just posterior to the iris, resting upon a concavity of the vitreous body. The posterior surface is slightly more curved than the anterior, but this latter has the property of increasing its convexity by the contraction of the ciliary muscle. This process is known as accommodation, and by it the eye is focused for objects at different distances. Embryology teaches us that it is entirely of epithelial origin. The anterior capsule is lined with a single layer of cuboidal cells which by a process of elongation grow into fibres which extend from the anterior to the posterior capsule.

In other epithelial structures the worn out cells are exfoliated; but here, as new cells are

between the two, but a gradual increase in density from without inward. In elderly people the refraction of the centre is often quite different from the periphery.

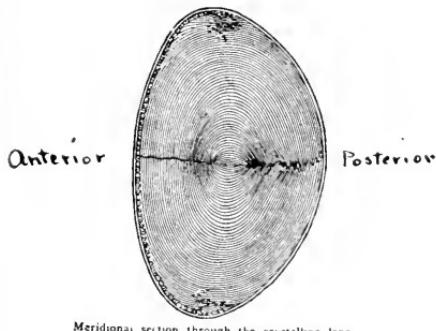


FIG. 3. (Henderson.)
Showing growth of lens fibres from epithelial cells lining anterior capsule, the nuclei accumulated in the equatorial zone, and lines formed by union of ends of fibres.

The lens has no blood vessels, its nutrition being secured by absorption of lymph from the ciliary processes. The metabolism is, therefore, extremely slow.

A complete enumeration of the varieties of cataract would transcend the limits of this paper, but a few must be mentioned, with no further explanation than the names imply.

Congenital and acquired.

Primary and secondary.

Hard and soft.

* Read on Oct. 7, 1915, at the monthly meeting of the Boston section of the Massachusetts Homeopathic Medical Society.

The typical senile cataract is *hard*, is *acquired* and usually *primary*, but may be secondary in the sense that it may be influenced by some other diseased condition. It is either nuclear or cortical, depending on the location of the opacity.

The nuclear variety is simply an exaggeration of the normal crowding together of the worn out cells, a strictly senile change.

Common senile cataract is an opacity of the cortex of the lens, beginning at the periphery in the form of radial streaks. These streaks look grey with oblique illumination, and show as black lines with the ophthalmoscope. If they do not extend far into the pupillary area the sight is not at all affected. Later on they may have a stellate appearance following the lines of the uniting lens fibres.

This variety of cataract is seldom seen before the 50th year, and increases in frequency with older patients, yet it cannot be regarded as a physiological senile change. Regeneration of the new cells takes place more slowly and metab-

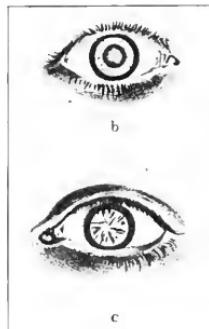


FIG. 4. (Haab.)

Ophthalmoscopic appearance with dilated pupil. *b* Zonular opacity with radial striae; *c*, Cortical opacity, immature, showing stellate figure.

olism, at all times slow, is less active. The normal sclerosing evidently predisposes to the formation of spaces between the fibres, which become filled with liquid which has a different refractive index from the fibres themselves, and thus form opacities. Fatty degeneration occurs in spots and lime salts are often deposited as the cataract matures.

If the patient be one who consults his oculist at reasonable periods, the latter will discover the trouble long before the patient is aware of it. These cases are often complicated with general faulty metabolism, and occasionally are of diabetic origin. Any disease which affects the nutrition, like glaucoma or uveitis, may be the primary cause and should receive the appropriate treatment.

Will it progress is a question no one can answer, so it is the consensus of opinion of most ophthalmologists that the patient should not be enlightened. Fuchs puts it thus, p. 415:

"No kind of medicinal treatment is effectual

against cataract. . . The progress is sometimes rapid, sometimes slow, the latter especially in senile cataract, which not infrequently remains in an almost unchanged condition for years. Hence when we find in an elderly patient the

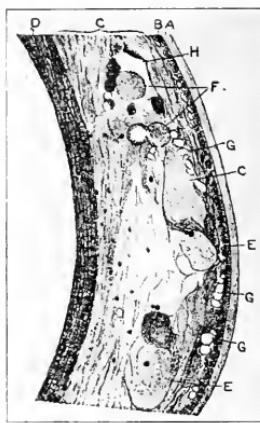


FIG. 5. (Weichselbaum.)

Microscopic section of nearly mature cataract.
a, capsule; *b*, epithelium; *c*, cortical layer; *d*, anterior portion of nucleus; *f*, spheres of fatty degeneration; *g*, vacuoles; *h*, complete liquefaction of lens substance.

first stages of a cataract, which as yet produces no interference with vision worth mentioning, the indication is, in the interest of the patient, not to frighten him by communicating the condition to him, as he may enjoy good vision for several years to come."

Dr. deSchweinitz says of prognosis, p. 545:

"Incipient cataract in the form of striae in the anterior cortex need not doom the patient to rapid deterioration of sight, because the existing vision is often maintained for long periods of time. Spontaneous disappearance of senile cataract has been reported. . . Drugs do not exist which can dissolve a growing cataract."

The natural history of untreated senile cataract has, so far as the author knows, never been properly investigated. Various drugs have been advocated and each has had its vogue, but no one has yet been able to record any better success than follows the let-alone policy. In most cases the opacity is unchanged. Authentic cases of spontaneous absorption have been reported, and a certain percentage will progress to maturity. Most of the reports of success of a certain line of treatment have omitted to give the number of cases not benefited, so that nothing is proved. Cinnernaria Maritima enjoyed a great reputation with the laity and some practitioners, but an investigation of the case made by the Homeopathic O. O. and L. Society some years ago showed that value was not proved.

The sub-conjunctival injection of potassium iodide was claimed to have the power of absorbing opacities. I tried this in a few cases, but

could discover no value. The x-ray flash was announced as a cure. I secured the apparatus and with the coöperation of Dr. B. T. Loring, tried it on a dozen cases, but was doomed to disappointment. Cures have been reported with drugs administered homeopathically, but never under conditions essential to scientific demonstration. For a number of years I have pursued the policy of "*watchful waiting*," until it is evident that the opacity is increasing.

All cases of incipient cataracts have been indexed. From 1900 to 1915 of all private patients over fifty years of age, 23% had some demonstrable opacity in the lens, though in many cases the sight was but little if at all affected, yet by the accepted definition one must diagnose cataract. Sufficient time has now elapsed to report on those seen from 1900 to 1905. One-half had vision of .5 or better, that is, serviceable sight. Many have been watched at varying intervals for from 10 to 15 years. Of course many have been lost sight of, but as near as can be estimated not more than 1% of the truly incipient cases have matured and not more than 5% of the same have materially advanced. From this it appears that the prognosis of incipient senile cataract untreated is extremely good. Most of the cases which have come to operation have been nearly or quite mature when first seen.

Unless one can show that his results with a certain drug, internal or external, or the indicated remedy or the mechanical appliance are better than the untreated case, he has not proved the therapeutic value of his interference. Patients are so willing to be treated, especially if one uses the word cataract, that it takes some moral courage to desist. The coöperation of the family physician would greatly assist in the rational treatment of the case.

We refrain from using the word "cataract," but say truthfully "There is some slight opacity in the lens." A careful drawing is made to show size and location of the opacity for future reference. This is important, as vision may remain unchanged even with marked increase of defect. A laboratory urinalysis of a 24-hour sample is made and duplicate report sent to the family physician, who is apprized of the true condition. He is requested to go over the case carefully, and patient is advised that attention to general health will be most helpful. Any marked reduction in urea excretion is treated with high frequency auto-condensation three times a week for one month, when a second urinalysis is made to determine if excretion be increased. Refraction should be corrected frequently, as cataractous eyes are apt to undergo much change in this respect. Contrary to what some advise, the reasonable use of the eyes is encouraged, believing that if any accommodation be possible it will be beneficial—possibly improving metabolism. Eye grounds are studied

and any associated disease treated, especial attention being paid to lacrimal stenosis. This must be cured before any operation be undertaken lest the wound become infected from the contents of the sac. If a few probings fail to secure drainage the sac is extirpated.

The patient is requested to return in one month for observation and if no change be discovered, he is asked to return in three months. The case is then usually lost sight of until he needs a change in glasses. A certain proportion of cases will progress. Many ophthalmologists feel that these should be treated, though few of them agree upon the indications. For a number of years I have refrained from doing so, though I should not hesitate if the patient seemed unwilling to accept my let alone advice. Unfortunately many seemingly are satisfied, but are led astray by the great claims of cataract absorbers, and are apt to return to us for the extraction, impoverished by unprincipled fakirs. The progress of an untreated case is not a gradual loss of sight, as the process may become stationary at any period. Fortunately the two eyes are seldom equally affected, so that one retains good vision while the other is maturing. So long as the better eye is sufficient for reading, it is wise to wait for maturity, because with this maturity fluid forms beneath the capsule, loosening it from the cortex, thus allowing a much cleaner extraction. Efforts to hasten maturity have been used, such as massage of the capsule through corneal incision, but are now seldom resorted to. *There need, however, be no period of blindness.* With a preliminary iridectomy and a preliminary capsulotomy the immature lens may be safely extracted. Cocaine suffices and general anesthesia is resorted to only with an extremely nervous patient. The preliminary iridectomy is done three or four weeks before extraction. It necessitates a stay of three days in the hospital, but the patient is allowed to be up and about. Although it means two operations instead of one, it greatly facilitates the major operation by affording a field clear of hemorrhage from the iris. There is also less danger of iritic adhesions to the capsule. Incidentally it teaches the patient what is expected of him, allays his apprehension, and helps the surgeon to gain his confidence. The preliminary capsulotomy is performed if the lens is immature. It consists in introducing the knife needle through the cornea and incising the capsule. The object sought is the loosening of the capsule from the cortex by allowing the aqueous to penetrate it. It is done the evening prior to the extraction.

The quack advertisement "Avoid the terrors of the knife and take my absorption treatment" does seduce many otherwise intelligent patients to waste their substance. Help us to convince these people that the "terrors" are imaginary.

The confinement in bed for three days with

both eyes bandaged is really the most uncomfortable part of the treatment. On the third day the eye is inspected and if the wound has healed, the unoperated eye is left unbandaged and the patient allowed to be up. A night nurse is always in attendance when both eyes are bandaged, but there is no restraint of the hands, as the operated eye is protected by an aluminum shield.

The statistics given by Knapp,¹ whose observations were based on a large number of cases at home and abroad, give the results as follows: "In all cases as they come, failures, 5%; moderate results, 10%; good results, 85%." It is, therefore, evident that a good prognosis is justified in the cases which advance so as to require operation. If one is losing his sight the most hopeful diagnosis is cataract. If the eye be normal in other respects, sight is usually restored.

The principal causes of failures are:

A diseased eye behind the cataract.

Infection, usually auto-infection, may occur, as it is impossible to secure perfect asepsis. Vision is usually lost, but fortunately this is extremely rare, perhaps 1 or 2%.

Post-operative hemorrhage from the retina is extremely rare but fatal to success.

Iritis, traumatic and from rheumatic diathesis, may leave a closed pupil but this can usually be remedied by a skillful Ziegler iridotomy.

Patients with incurable diabetes and nephritis are undesirable risks, but most surgeons feel it a duty to give them the chance. Naturally the statistics of a given operator will be greatly affected by the percentage of unfavorable cases.

CONCLUSION.

Most incipient senile cataracts never advance enough to need operation; therefore, we should avoid the term "cataract" and give the most hopeful prognosis until it is evident that it is progressive. Then, if it does mature, operation offers a good prognosis. If the sight of the better eye is insufficient for reading, the immature cataract of the more advanced eye can be safely removed, so there need be no years of partial blindness waiting for ripening. Certainly the patient is entitled to the most optimistic opinion which clinical history and experience warrant.

THE RADICAL TREATMENT OF PERITONSILLAR ABSCESS BY TONSILLECTOMY DURING THE ACUTE STAGE OF THE DISEASE.*

BY HARRY A. BARNES, M. D., BOSTON.

PERITONSILLAR abscess is a suppurative inflammation of the walls of the sinus tonsillaris. As the tonsil itself is in reality only a complicated mucous membrane containing a large amount of lymphoid tissue and covering the walls of the sinus, quinsy may be considered a submucous abscess of the sinus. The pus, therefore, usually is confined between the fibrous mucosa of the sinus (the tonsillar capsule) and the muscular walls of the fauces immediately subjacent to it,—the superior constrictor of the pharynx externally, and the palato-glossus and palatopharyngeus anteriorly and posteriorly respectively. The pus may be confined by inflammatory adhesions to a small area anywhere within this comparatively wide field; or it may dissect the capsule away from the muscles over a large portion of the sinus. As the sinus extends high into the palate, the latter type of abscess appears to be palatal in position, and may be opened and drained either through an incision in the palate, or one extending upward and outward through the superior wall of the supratonsillar fossa. Anterior and posterior abscesses, when their situation can readily be determined, are usually easily accessible by incision through the anterior pillar or between the posterior pillar and the tonsil. When, however, the pus is confined to the space between the body of the tonsil and the superior constrictor muscle, the task of reaching it by incision is not always an easy one. Every surgeon has probably had the experience of repeated failures to locate the pus in this class of case, which of all surgical affections is one of the most uncomfortable to the patient with which we have to deal. Some years ago Ballanger suggested a method by which such abscesses might readily and surely be drained with a minimum of suffering to the patient,—a capsular dissection of the tonsil backward until the abscess cavity is reached. Provided ankylosis of the jaw, nearly always present in quinsy, is not so great as to make access to the fauces difficult, this method is easily carried out and is practically sure of success. I had been using it for some time with satisfactory results, under a general ether anesthesia, when Dr. A. Coolidge, chief of the throat department of the Massachusetts General Hospital, suggested that the operation might be carried a step farther, and the tonsil then and there be dissected out completely. I confess that I was at first somewhat startled by the idea, having the old preconceived notions of the dangers of creating so large a wound in the presence of an acute streptococcus infection. On second

* Candidate's thesis for admission to the American Laryngological Association.

thought, however, I concluded that our fears on this score were not only groundless, but were without a good theoretical basis. Subsequent experience has, I think, confirmed this.

The theoretical dangers of the operation are two: First, that a general anesthesia is not safe on account of the possibility of subsequent pulmonary infection from inspired pus; second, that it is always dangerous to operate on an acute inflammation of the tonsil, at least to do so extensive an operation as a tonsillectomy, because of the fresh field opened up for infection. On the first head I can say only that I do not believe that the danger exists, beyond that which may be present in the dissection of any tonsil, provided due care is taken when the abscess cavity is reached, to prevent with gauze sponges any escape of pus below the fauces. Very large peritonsillar abscesses are not suitable for this method of treatment, both because they may easily be drained by simple incision, and because their size makes a general anesthetic inadvisable. In these the large amount of pus might be difficult to manage in such a manner as to be sure that a considerable amount did not get below the fauces. In the smaller deep-seated abscesses a sponge on the end of a holder absorbs the pus perfectly as fast as it is evacuated. I have now operated on ten cases by this method, and in none have I had reason to believe at the time of operation that any pus was inhaled, nor has there been anything in the subsequent history of these cases that would suggest it.

Of the second danger, that of infecting a large fresh wound with the streptococcus, it may be said that both theory and observation show that this method is much safer than the usual treatment by simple incision. This incision through the palate or the anterior pillar *does* open a fresh field for infection, in that in some of its course at least it goes through more or less normal tissue, where inflammatory exudate has had no chance to place a protective barrier between the streptococcus and the general system. To this also may be added the possibility of opening one of the large veins of the sinus walls by a blind incision. A fatal case of general streptococcus infection, following such an incision, occurred at the Massachusetts General Hospital last year, which I have always felt might have been due to this cause. Moreover, a fresh cut immediately closes more or less completely, so that drainage is poor, not only from the abscess cavity itself, but from the newly infected area of the incision. When the tonsil is dissected out, however, the conditions are in every way more favorable. The sinus walls are everywhere protected from absorption of the streptococcus by marked inflammatory infiltration, and the only fresh wounds made by the dissection are those through the plica anteriorly and posteriorly. It may be argued that the sinus walls everywhere are liable to injury; but if the dissection is carried out according to the description given later in this paper, there is but slight danger of this.

Add to these theoretical considerations the fact that after dissection we have, instead of a closed abscess sac and a poorly drained, fresh incision, a simple open ulcer the walls of which are everywhere rendered practically impervious to absorption, and it will be appreciated that this radical treatment is far less dangerous from the standpoint of streptococcus infection than the older method of simple incision.

One other point makes this method of particular value,—the abscess may be treated with success much earlier than in any other way. Peritonsillar abscess has been said not to become suppurative until the fourth or fifth day of the disease. That this is not so, anyone may convince himself by dissecting out the tonsil on the third or even the second day. He will then find that the disease becomes suppurative early, and that the reason that pus is seldom found before the fourth day is that it is too deeply seated and too small in amount to be found with any degree of certainty by the method of incision. Tonsillectomy offers a practical way of safely cutting short these most distressing inflammations early in their course. It is advisable that it be done not earlier than the third day, however, as before that time the walls of the sinus are not sufficiently infiltrated to offer a suitable defense against streptococcus infection.

The operation of tonsillectomy in these cases differs only slightly from the usual procedure by the dissection method. It is essential that the dissection be a clean one, and that the muscular walls of the sinus be as little injured as possible. If one of the larger veins is opened, it seems to me that the chances of general streptococcus infection may be distinctly increased. To avoid this, it is necessary that the field of dissection should be seen at every step. Now these tonsils are always tightly adherent to the walls of the sinus, except over the area occupied by the abscess itself. It is difficult, therefore, to find the line of demarcation between the two after the first incision in the plica has been made. The usual more or less blind evulsion of the superior lobe by blunt instruments or by probe pointed knives is dangerous, as the sinus walls are almost sure to be injured. To insure against this, I have found a pillar retractor essential. The one I have used is not unlike Killian's retractor for the lacrimal sac, except that the handle is longer, the blade broader and thinner and the curve somewhat greater. After the first incision in the plica has been made, the retractor is inserted by an assistant under the free edge, and the plica and pillar gently pulled outward and forward. At the same time the tenaculum holding the tonsil is pulled inward, so that the line of demarcation between the capsule and the sinus wall is easily discerned at the apex of the resultant V-shaped cleft between the two tissues. The lightest touch of a sharp knife serves to deepen and widen this cleft, which is in this manner extended backward until the abscess cavity is

reached. A gauze sponge on a holder is then inserted against the incision and the abscess cavity allowed gradually to empty itself. If there is a large amount of pus, several sponges may be required to absorb it. This, however, causes no embarrassment, as the stream may be cut off or turned on at will by the valve-like action of the plica and anterior pillar controlled by the retractor. When the pus has been completely evacuated, the dissection is again carried on as before until the tonsil is sufficiently freed to allow of the easy application of the snare.

The bleeding during this operation is surprisingly slight,—no greater, indeed, than that which occurs in the usual operation on the non-adherent tonsil.

The question of the disposition of the other tonsil is a delicate one. I have always removed it; and though cogent reasons undoubtedly might be advanced against it, I have yet to see any untoward results that would lead me to change my belief in its safety.

The results of the operation are particularly gratifying, especially to the patient. All the local symptoms subside with surprising rapidity, so that on the day following operation, the sore throat of tonsillectomy alone remains. Strangely enough, this last symptom is always quite mild on the side of the abscess, and patients invariably remark upon the fact. The lessened sensibility of the wound is probably due to the infiltrated condition of the tissues.

NOTES OF A CONFERENCE ON THE MEDICAL AND SOCIAL ASPECTS OF SYPHILIS OF THE NERVOUS SYSTEM.

HELD AT THE PSYCHOPATHIC HOSPITAL,
MAY 27, 1915.

(Continued from page 996.)

VII.

THE SIGNIFICANCE OF CHANGES IN CELLULAR CONTENT OF CEREBROSPINAL FLUID IN NEURO-SYPHILIS.*

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THE cell count of the spinal fluid has been used to a great extent in studying cases of syphilis of the central nervous system, especially in

the matters of differential diagnosis and in estimating the results of antisiphilitic therapy. Prognostic importance has been assigned to the count by many investigators when subjecting patients to treatment by mercury, salvarsan or salvarsanized serum, that is, in general it has seemed a hopeful sign when the cell count has dropped. For this reason it seems well to consider the variation in the count in untreated as well as in treated cases. Mitchell, Darling and Newcomb published a study of the cell count in a group of paretic patients in the *Journal of Nervous and Mental Diseases* (November, 1914), showing that there was a general, though not absolute, tendency for the cell count to fall toward the termination of the disease in death.

The present study consists in interval cell counts in cases diagnosed as general paresis or cerebrospinal syphilis (assuming that it is not always possible to make the differential diagnosis) in a series of 46 cases. Treatment consisting of mercury, salvarsan intravenously and potassium iodide was given in 19, the other 27 cases receiving no treatment. The counts were made at varying intervals, some short and some longer. The counts were made in the cell chamber of Fuchs-Rosenthal, staining with Unna's polychrome methylene blue in the pipette. Other tests were also performed on these fluids, to wit: Nonne-Apelt test for globulin, Mestrezat test for albumin, Lange's gold sol test, and the Wassermann reaction.

Before considering the actual findings it may be well to speak of the meaning of a pleocytosis. It seems safe to state that the cells in the spinal fluid came from either the meninges, the perivascular or perilymphatic spaces (the probabilities being that it is chiefly from the former). It does not behoove us to consider whether these cells are derived originally from the blood stream entirely or from the vessel wall or meninges; it is sufficient to know that their presence in the fluid speaks for their presence in these places. It is not known what causes them to be cast off into the fluid. As a general rule the exudation of cells is greater in cerebrospinal syphilis than in general paresis, as is seen histologically, but this does not necessarily mean that they are to be found in greater number in the fluid, for there are undoubtedly cases of paresis showing high counts, and cases of cerebrospinal syphilis showing comparatively low counts. Thus in one case of cerebrospinal syphilis confirmed histopathologically, the count was 109 per c.mm., while in a case of general paresis at one time the count was 310 (Case 3), and in another case diagnosed cerebrospinal syphilis on account of the clearing up of the fluid under mercurial therapy the highest count before and during treatment was 92 per c.mm. It is seen also that the number of cells may jump from 92 to 261 and again fall without treatment (M. M., No. I, 23), and from 80 to 332 (T. F., No. II, 7). From these facts it is seen that the cell count has

* Being S. I. B. Contribution whole number 128. (1915, 31.)
Bibliographical Note.—The previous contribution was by Harry C. Solomon, H. O. Koefod and E. S. Welles, entitled "Diagnostic Value of Lange's Gold Sol Test," Boston Medical and Surgical Journal, Dec. 23, 1915, Vol. clxxviii, No. 26, p. 950.

no distinct importance in the differentiation of cerebrospinal syphilis and general paresis.

The report of Mitchell and his co-workers above mentioned, suggests the problem of judging the age of the process or the approach of the terminal stage. Our material consisted for the most part of comparatively early cases, but in these there was so great a variation in the number of cells found in different cases without regard to the stage of the disease that it seemed that no conclusions could be drawn in this question. But from our pathological knowledge we know that cases of "galloping paresis" may show considerable infiltration and comparatively low count in the fluid, and further that slow chronic cases may at any time show active manifestations pointing to marked increase in the meningitis and perivascular infiltration. Further, it must be remembered that some cases in which the inflammatory process is slight, but the parenchymatous degeneration progressive, may go for a long period of years without much change in symptoms and a low count, as shown in the case of G. R. (see below). It is more probably true that the cell count is some indication of the amount of inflammatory reaction present, and thus only in a slight measure an index of the severity of the process, and in very little degree of prognostic value, for in paresis the important changes are of an atrophic nature in the parenchymatous structure.*

Alzheimer has suggested that the paretic process is best indicated by the amount of dementia and that the irritative phenomena, excitements, etc., are an indication of the amount of inflammatory reaction present, and that remissions indicate a partial cessation of the inflammatory process, but in no way an index of the amount of atrophy. If this is so, one would expect a comparatively low count in the remissions. This is not borne out by our meagre figures on the cases showing remissions. On the other hand, the amount of excitement in no way parallels the cell count.

The following tables indicate the data from which our conclusions are drawn:

TABLE I.

CASES HAVING RECEIVED TREATMENT.

A. General Paresis.

CASE 1. J. S. (3598).

Dec. 18, 1914,	16	3 intravenous injections neosal-
Jan. 6, 1915,	14	2 intravenous injections neosal-
Jan. 13, 1915,	3	2 intravenous injections neosal-
Jan. 31, 1915,	4	3 intravenous injections salvar-
Mar. 4, 1915,	3	4 intravenous injections salvar-
		san.

* It may be added here that Heald and Fearnside, Fildes and McIntosh state that the reaction of the spinal fluid is an indication more of the conditions existing in the spinal cord region than in the cranial cavity, which, if true, would mean that the cell count has little or no prognostic value in paresis.

During treatment patient became more demented and finally bedridden, due to weakness of legs. No change in Wassermann reaction, globulin or albumin content of fluid, or gold sol.

CASE 2. A. D. (3627)

June 24, 1914,	41	11 intravenous injections salva-
Oct. 6, 1914,	149	15 grs. mercury salicylate intra-
Nov. 11, 1914,	82	muscularly.
Dec. 12, 1914,	157	
Jan. 9, 1915,	41	

Patient slightly more aphasic, otherwise condition practically unchanged. No change in other spinal fluid tests.

CASE 3. W. R. (1659).

Sept. 15, 1913,	165
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Oct. 25, 1913,	310	3 intravenous and 3 intraspinal treatments.
Jan. 31, 1914	11	1 intravenous and 1 intraspinal treatment.
Feb. 3, 1914,	25	2 intravenous and 2 intraspinal treatments.
Mar. 27, 1914,	77	1 intravenous treatment.
April 4, 1914,	23	3 intravenous treatments.
May 14, 1914,	25	17 intravenous treatments, last treatment July 25, 1915.
Dec. 1, 1914,	30	
May 23, 1915,	41	

Patient became progressively worse. No change in other spinal fluid tests.

CASE 4. F. L. (4161).

Jan. 13, 1915,	80	No treatment.
Feb. 3, 1915,	124	3 intravenous injections salva-
Mar. 12, 1915,	92	san.
April 3, 1915,	37	4 intravenous injections salva-
April 21, 1915,	22	san.
		2 grs. mercury salicylate intra-
		mnsecularly.

Patient showed remission of mental symptoms; no changes in spinal fluid except cell count. Patient at first much agitated and quite active, with marked tremors and unsteadiness, these symptoms becoming less as cell count fell.

CASE 5. F. A. (4098).

Jan. 6, 1915,	130	2 intravenous injections neosal-
Jan. 17, 1915,	56	1 intravenous injection neosal-
Jan. 31, 1915,	15	2 intravenous injections salva-
Mar. 4, 1915,	8	san.
April 7, 1915,	6	1 gr. mercury salicylate intra-
		mnsecularly.
		9 intravenous injections salva-
		san.

Patient showed remission of mental symptoms, but no change in spinal fluid except cell count.

During time the cell count was high, patient was very excited and in a manic condition; these symptoms of mania subsiding synchronously with fall in cell count.

CASE 6. J. M. (4453).

Mar. 6, 1915,	42	3 intravenous injections salvarsan.
Mar. 24, 1915,	23	2 intravenous injections salvarsan.
Mar. 31, 1915,	12	4 intravenous injections salvarsan.
April 14, 1915,	14	
April 21, 1915,	10	1 intravenous injection salvarsan.
April 24, 1915,	7	1 intravenous injection salvarsan.
May 1, 1915,	9	2 intravenous injections salvarsan.
May 5, 1915,	7	1 intravenous injection salvarsan.
May 15, 1915,	3	No treatment.
June 23, 1915,	20	5 intravenous injections salvarsan.
July 10, 1915,	26	7 intravenous injections salvarsan.
Aug. 10, 1915,	150	4 intravenous injections salvarsan.
Sept. 2, 1915,	200	san.

Patient continues in maniacal condition. No changes in spinal fluid findings other than in cell count. Note rise in count during treatment. Physical and mental condition worse.

CASE 7. L. Mc. (2758).

June 13, 1914,	8	6 intravenous injections salvarsan.
July 1, 1914,	25	san.

Patient showed practically no mental symptoms. No change in fluid other than cell count.

CASE 8. W. D. (2509).

April 28, 1914,	121	
June 30, 1914,	140	3 intravenous injections salvarsan.
July 20, 1914,	30	san.

During interval in which cell count rose from 121 to 140, patient's condition changed from marked excitement to mental normality. Fluid showed no changes other than cell count.

CASE 9. A.D. (4383).

Jan. 17, 1914,	82	
April 20, 1914,	225	2 intravenous injections salvarsan.
April 31, 1914,	37	
April 3, 1915,	158	
May 25, 1915,	63	

During these 16 months, patient's condition showed slight increase in dementia; no other changes. No spinal fluid changes other than cell count. Note rise in count after cessation of treatment, followed by fall.

CASE 10. M. K. (4654).

April 15, 1915,	80	
April 24, 1915,	61	1 intravenous injection salvarsan.
May 1, 1915,	37	1 intravenous injection salvarsan.
May 5, 1915,	14	3 intravenous injections salvarsan.
May 26, 1915,	5	2 intravenous injections salvarsan.
June 5, 1915,	6	

No change in other findings. Clinical improvement.

CASE 11. A. McL. (4733).

April 28, 1915,	88	
April 1915,	112	Intramuscular injections mercury twice a week.
May 3, 1915,	53	

No change in other findings.

CASE 12. D. S. (4884).

May 24, 1915,	15	1 intravenous injection salvarsan.
May 30, 1915,	26	
June 15, 1915,	77	

Cessation of epileptiform seizures. Spinal fluid tests unchanged.

B. Juvenile Neurosyphilis.

CASE 13. G. U. (4154).

Jan. 13, 1915,	44	7 intravenous injections salvarsan.
		3 intramuscular injections mercury.
Mar. 24, 1915,	8	6 intramuscular injections mercury.
May 5, 1915,	13	
June 5, 1915,	20	7 intramuscular injections mercury.

Very little, if any, change in patient's condition. Spinal fluid findings other than cell count unchanged.

CASE 14. F. A.

April 3, 1915,	4	5 intravenous injections salvarsan.
April 28, 1915,	15	san.

Slight improvement in patient's condition. No change in fluid findings other than cell count.

C. Cerebrospinal Syphilis.

CASE 15. J. R. (2251).

Feb. 13, 1914,	26
Mar. 27, 1914,	4
April 2, 1914,	21
May 9, 1914,	4

3 intravenous injections salvarsan.
1 intraspinal injection salvarsan.
3 intravenous injections salvarsan.
3 intravenous injections salvarsan.

Clinical recovery. All signs in spinal fluid became practically normal.

CASE 16. C. S. (4508).

Mar. 22, 1915,	80
Mar. 24, 1915,	91
Mar. 31, 1915,	92
April 7, 1915,	67
May 5, 1915,	8
June 2, 1915,	67
Aug. 13, 1915,	5

Intramuscular injections mercury.

Clinical improvement. Spinal fluid practically normal on June 2, 1915, except for pleocytosis. Note that pleocytosis is last spinal fluid abnormality to disappear.

CASE 17. A. W. (4517).

Mar. 22, 1915,	75
Mar. 24, 1915	56
May 1, 1915,	9
May 22, 1915,	2
May 26, 1915,	2
June 5, 1915,	7

1 intramuscular injection mercury.
5 intravenous injections salvarsan.
5 intravenous injections salvarsan.
1 intravenous injection salvarsan.
3 intravenous injections salvarsan.

During interval in which cell count dropped from 56 to 9, patient had apoplectiform seizure with hemiparesis, with marked excitement following. Since quiet. Wassermann reaction less strong than earlier.

II. UNTREATED CASES.

CASE 1. J. C. (3446).

Sept. 9, 1914,	16
Oct. 6, 1914,	19
Oct. 15, 1914,	28
Oct. 24, 1914,	25
May 22, 1915,	28

Slow progressive dementia.

CASE 2. C. C. (3931, 3868).

Dec. 2, 1914,	10
Dec. 12, 1914,	12

Slowly developing tabo-paresis.

CASE 3. J. C. (3857).

Nov. 18, 1914, 38

Nov. 28, 1914, 46
Marked tremor. Demented.

Dec. 9, 1914, 43

May 24, 1915, 15

CASE 4. F. D.

Oct. 28, 1914, 26

Nov. 7, 1914, 25

CASE 5. M. D. (4179, 4055).

Jan. 17, 1915, 33

Feb. 3, 1915, 25 Slowly developing tabo-paresis, advanced stage.

May 22, 1915, 9

CASE 18. H. S. (4794, 5105).

July 6, 1915, 176 1 intravenous injection salvarsan,

1 gr. mercury salicylate intramuscularly.

July 10, 1915, 347 1 intravenous injection salvarsan,

July 14, 1915, 69 3 grs. mercury salicylate intramuscularly.

July 21, 1915, 83 1 intravenous injection salvarsan,

July 28, 1915, 81 1½ grs. mercury salicylate intramuscularly.

Aug. 10, 1915, 20 3 intravenous injections salvarsan,

Sept. 2, 1915, 20 6 intravenous injections salvarsan.

Marked improvement.

CASE 19. P. W. (4785, 5089).

July 1, 1915, 48 1 intravenous injection salvarsan,

July 10, 1915, 45 1 intravenous injection salvarsan,

July 14, 1915, 39 2 intravenous injections salvarsan,

July 21, 1915, 34 1 intravenous injection salvarsan,

July 24, 1915, 18 1 intravenous injection salvarsan,

July 28, 1915, 18 3 intravenous injections salvarsan,

Aug. 10, 1915, 12

Wassermann reaction negative July 28, 1915; globulin and albumin normal. Clinical improvement. Note cell count last of reactions to reach normal.

CASE 6. F. F. (4150, 4033).

Jan. 13, 1915, 127 Maniacal.

Feb. 3, 1915, 78

CASE 7. T. F. (4528).

Mar. 24, 1915, 115

Mar. 27, 1915, 191 Rapid dementia.

April 7, 1915, 80

May 26, 1915, 332

CASE 8. E. H.

Nov. 4, 1914, 99
 Nov. 11, 1914, 118 Paresis sine paresi.
 Nov. 26, 1914, 92 No symptoms.

CASE 9. W. H.

Dec. 19, 1914, 153 Advanced case.
 May 22, 1915, 15

CASE 10. J. K. (3647, 3643).

Oct. 6, 1914, 47 Galloping paresis.
 Oct. 17, 1914, 33

CASE 11. H. G. (4577, 4696).

April 10, 1915, 103 Early paresis.
 May 22, 1915, 97 Dementing form.
 June 8, 1915, 77

CASE 12. H. H.

Mar. 31, 1915, 151
 April 7, 1915, 102 Dementing form.
 April 21, 1915, 141

CASE 13. G. J. (4636).

April 10, 1915, 52 Terminal stage
 May 5, 1915, 28

CASE 14. B. R. (4646).

April 15, 1915, 35
 April 24, 1915, 158 Mute, Apathetic.
 May 12, 1915, 38 Dementing form.
 June 23, 1915, 50

CASE 15. G. R. (4112, 4002).

Jan. 7, 1915, 5 Chronic, slowly progressing tabo-paresis.
 Jan. 9, 1915, 11 Small amounts of globulin and albumin.
 Jan. 23, 1915, 6 W. R. at times negative, again positive.
 Feb. 3, 1915, 7

CASE 16. F. S. (3363).

Aug. 23, 1914, 17 Dementing form.
 Oct. 17, 1914, 31

CASE 17. W. Y. (3691, 3679).

Oct. 24, 1914, 67
 Oct. 31, 1914, 52 Maniacal—expansive.
 May 26, 1915, 157

CASE 18. P. G. (4547).

Mar. 31, 1915, 107 Bed-ridden, tabo-paresis.
 April 7, 1915, 123 Late demented form.

CASE 19. J. M. (5167).

July 9, 1914, 41
 Sept. 2, 1914, 23 Dementing form.
 Oct. 31, 1914, 60

CASE 20. M. M. (3874).

Nov. 21, 1914, 92
 Dec. 5, 1914, 261 Excited, demented.
 Dec. 12, 1914, 180 Found to be cerebrospinal syph-
 ilis at autopsy.

CASE 21. T. M. (3887).

Dec. 26, 1914, 47
 Jan. 20, 1915, 58 Demented.
 Jan. 27, 1915, 32

CASE 22. M. M. (4191).

Jan. 20, 1915, 28 Demented, tabo-paresis.
 Feb. 3, 1915, 18

CASE 23. J. M. (4220).

Jan. 23, 1915, 42
 Mar. 12, 1915, 41 Demented.
 Mar. 31, 1915, 41
 April 7, 1915, 28
 May 26, 1915, 17

CASE 24. D. McC. (4336).

July 7, 1914, 60 Remission between two counts.
 Feb. 13, 1915, 131

CASE 25. C. M. (4393).

Feb. 24, 1915, 33
 Mar. 13, 1915, 32
 Mar. 24, 1915, 48 Demented form.
 Mar. 31, 1915, 50
 Mar. 22, 1915, 28

CASE 26. M. O. B. (3097).

June 21, 1914, 13 Expansive.
 Mar. 13, 1915, 46

CASE 27. G. R. (4018).

Dec. 18, 1914, 47 Demented form.
 Jan. 9, 1915, 84

The following conclusions seem justified:—

1. The number of cells found in the fluid of untreated cases offers no definite information of prognostic value.

2. That one is not justified in drawing any conclusions as to whether the case is C. S. S. or G. P., nor the time the process has been active, nor the severity of it, from the cell count.

3. The cell count may vary greatly from month to month, or when the interval is but several days, while at other times it may remain very nearly the same after an interval of months.

4. Cases showing natural remissions may show no reduction in the cell count, or other spinal fluid findings.

5. Cases treated with salvarsan either intraspinally or intravenously tend to show a more or less rapid fall in the cell count. This count will as a rule remain low during treatment, but is likely to rise when treatment has been discontinued, but may rise during treatment after having first fallen.

6. Cases may show remissions during treatment and still have a pleocytosis.

7. Treated cases having the cell count fall to normal may at the same time become very much worse and develop more marked paralytic symptoms.

8. In general paresis the cell count in no way parallels the other spinal fluid findings.

9. In cases in which the *other* tests show an improvement, for instance C.S.S., the cell count also readily and early drops to normal. At times it may drop to normal before other spinal fluid tests become negative; again it may be last to reach normal.

10. The change in cell count seen in syphilitic disease untreated, is also found in non-syphilitic diseases, as brain tumor.

11. The cell count offers *nothing* of prognostic importance in syphilis of the nervous system, unless accompanied by improvement of the other laboratory signs.

11. The cell count is not an index to the predominance of irritative or degenerative changes.

(Series concluded in next volume.)

Society Report.

THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

MEETING OF WEDNESDAY, JUNE 2ND, 1915 AT 8 P. M.

The President, DR. JAMES C. WILSON, in the Chair.

RUPTURE OF PORTAL VEIN CAUSING INTRA-HEPATIC HEMATOMA SIMULATING RUPTURE OF A HOLLOW VISCUS.

DR. JOHN B. ROBERTS: A man who fell across a step in the street and struck the upper portion of the abdomen, suffering from great pain, was supposed to have ruptured stomach or intestine, and was operated upon by me a few weeks ago. The operation showed some free blood in the peritoneal cavity, blood in the gastrohepatic omentum and in the neighborhood of the pancreas. No bleeding point was found needing control by ligature. The abdomen was, therefore closed. Death, either from shock or ether poisoning, occurred just as the operation was completed. Post-mortem examination showed a large clot within the liver due to a rupture of one of the branches of the portal vein, or of the portal vein itself just within the capsule of the liver.

PELVIC HORSE-SHOE KIDNEY SIMULATING PERFORATIVE APPENDICITIS.

DR. JOHN B. ROBERTS: In February last, operation was performed for what was supposed to be acute perforating appendicitis with adhesion of the ruptured appendix to the anterior belly wall. The operation was done hurriedly under antiseptic treatment of the skin, and mild appendicitis found without perforation. The swelling which led to the belief that perforation with anterior adhesion of the appendix had occurred was found to be a horse-shoe kidney, the right portion of which lay immediately under the appendix across the spine near the sacral promontory. The right and left portions were connected by a fibrous band uniting the lower poles in this unusual position.

These cases and others show the value of the surgeon's doubting tendency before operating. Though no harm was done by operating, the diagnosis in both these cases was erroneous. Surgeons need a doubting mind because the tendency to jump at conclusions and hastily operate sometimes subjects patients in abdominal, fracture, and other departments of surgery to unnecessary risk.

A few instances of this kind were given to show the truth of this statement.

CERTAIN SYPHILITIC AFFECTIONS OF THE HEART AND AORTA.

DR. J. M. ANDERS: The advent of the Wassermann reaction has shown that the etiologic rôle of syphilis in diseases of the cardiovascular system has been heretofore underestimated. While I would not say with recent investigators that syphilis is the principal factor in the production of heart disease, it can be assumed that rheumatism and syphilis head the list as causes of organic injury to this organ. While the cardiac lesions caused by the spirocheta pallida are usually considered as belonging to the tertian stage of syphilis, Grassman, Brooks and other investigators have expressed the opinion that serious damage may occur as early as the forepart of the second stage. Aortic and cardiac syphilis may be the result of hereditary lues. The claim made by Landois, Citron, Hausmann, Sears and others that lues may affect the heart alone is interesting and important. In two infants who died, one at three months of inanition, the other at eight days of asphyxia, Warthin and Snyder found the spirocheta pallida in the heart muscle, while neither histological lesions nor spirochetae were found elsewhere.

Among the commonest cardio-vascular conditions due to syphilis are myocarditis, aortic regurgitation, angina pectoris, and mesoartitis often resulting in aneurysm. Mesoartitis with or without coronary changes is commonly the primary complaint in cases in which, as frequently occurs, two or more of the above named affections are found in association. That this condition is due in many cases to syphilis, has been demonstrated both by post-mortem evidence and by the results of carefully conducted therapeutic observations. The intimate connection between lues and aneurysm, well-known to the older writers has been emphasized by those of modern times. With Hausmann, however, I would caution the medical profession against regarding every case of aneurysm, even in syphilitic subjects, as due to lues. Two differentiating etiological factors are that the root of the aorta is the usual seat of luetic aneurysms, which are frequently multiple.

Syphilis is now generally regarded as an essential factor in the causation of aortic incompetency, more particularly in cases developing before the 45th year of life. As in aneurysm, a positive Wassermann reaction alone, unsupported by clinical evidence, does not warrant an assured diagnosis of lues, although it renders highly probable the existence of syphilis. On the other hand, it must be remembered that aortic incompetency in a luetic subject may be due to other causes, especially if the lesion develops after middle life.

Early involvement of the myocardium is not infrequent in the course of syphilis. Early recognition is difficult but important. The symptoms do not differ from those of myocarditis due to other infections and it has been shown that they disappear

promptly under energetic antisyphilitic treatment. Anginoid pains are occasionally present, and obliterative endarteritis implicating the coronaries and producing myocarditis may result in attacks of true angina pectoris. Although a positive or negative Wassermann test is not an absolute criterion, Brooks contends that it is better than the 70% of error based on the history or clinical findings alone.

Of angina pectoris, I have collected 270 cases from the literature, of which only 72, or 26.5%, gave evidence of syphilis. This percentage is much too small, since in 250 of the cases no mention was made of a Wassermann test. The close association of syphilis and angina is amply confirmed by modern authorities.

My discussion of the treatment of cardio-vascular syphilis will be limited to prophylaxis. Doubtless the incidence of cardio-vascular disease would be much lessened by a more systematic and vigorous treatment of luetic infection in general. Physicians should feel the serious responsibility of the treatment of early syphilis in the wisest manner possible. This is further emphasized in the hazard of administering salvarsan or neosalvarsan in the severer forms of cardio-vascular syphilis. It has been found that death, occurring suddenly or after several days from the use of these agents, is commonly due to myocardial degeneration secondary to coronary lesions.

DISCUSSION.

DR. GEORGE W. NORRIS: I agree with Dr. Anders that since the discovery of the spirocheta pallida and our knowledge of the Wassermann test we have learned to recognize a number of lesions definitely syphilitic which in the past we barely suspected. In the last year more attention has been given to syphilitic nephritis, and it is somewhat comforting to know that if we do give mercury or salvarsan to these patients, we are likely to benefit their nephritis rather than to injure the kidneys. One point to which I would allude, emphasized by Dr. Anders, is the frequency with which sudden death may occur in syphilitic myocarditis. Among the symptoms which have struck me as having some guiding value are low pressure, mild anginoid attacks associated with dilatation of the left ventricle, and, as Dr. Anders has emphasized, cardiac irregularity followed by auricular fibrillation. In such cases salvarsan must not be administered without due consideration. I am particularly interested also in the question of aortitis in the young. In a considerable percentage of newborn infants dying shortly after birth the presence of the spirocheta pallida has been noted in the aorta. I feel that syphilis is inadequately treated in our dispensaries. Hospitals which refuse to treat this disease in its early stages are perfectly willing to give aid when the patient returns at a practically incurable stage. It seems to me that more efficient treatment of syphilis in dispensaries is one of the crying needs of our medical work today.

DR. JAMES TYSON: In my experience as a young man in dispensary service our method of treating cases which included rheumatoid affections was to give first iodide of potassium. Failing with this we added mercurial bichloride and an astonishingly large number of cases were benefited. It would seem, therefore, that the new methods of treatment confirm the old ones. I have sometimes thought that although this was a rough and ready method of

treating symptoms we might perhaps adhere to it with advantage a little more frequently than we do in modern times.

CLOSING DISCUSSION.

DR. ANDERS: I was glad to hear Dr. Norris say that we could employ salvarsan and mercury in nephritis due to syphilis. I have seen several very remarkable results in such instances from the alternate, and also from the separate use of these two agents. We must, however, be very certain that the syphilis is the real cause of the cardio-vascular and renal conditions. Mercury has its selective affinity for the kidneys, and there is no other variety of nephritis than the syphilitic in which its use is justified. While it is true that since the discovery of the Wassermann reaction the true importance of syphilis as a factor in many heart diseases has been in great part established, this cannot be said of this test in relation to angina pectoris. The close association of angina pectoris and syphilis remains to be established, according to my figures, at all events; but I believe it will be, once the profession is alive to the importance of making Wassermann tests in all cases of angina pectoris. Neglect to examine the heart systematically in the early stages of syphilis is attended with untoward results in many cases. In at least one-half of these cases symptoms arise which should arouse suspicion of cardiac involvement and lead to the most vigorous antisyphilitic treatment. In regard to cardiac involvement in the course of syphilis, the words of John Locke truly apply: "Prevention is better than cure, and far cheaper."

Harvard Medical School.

MEDICAL MEETING IN THE AMPHITHEATRE OF THE PETER BENT BRIGHAM HOSPITAL.

TUESDAY EVENING, DECEMBER 14TH, AT 8.15 O'CLOCK.

EXHIBITION OF CASE.

DR. JOHN HOMANS: An unusual case of tuberculosis of the ankle joint with marked periosteal reaction and atypical lymph nodes. Discussion by Drs. Councilman and Cushing.

PAPER OF DR. GEORGE C. SHATTUCK.

(Lady Paget Hospital.)

CLINICAL OBSERVATIONS ON TYPHUS FEVER IN SERBIA.

Among several hundred cases of infectious fever, about fifty-three were found to have true typhus fever. The following observations were based upon this series.

Among the clinical signs the rash is undoubtedly the most important. It is rarely seen on the face. Dr. Sellards, however, saw one case with an extensive eruption which covered the entire face. Within twenty-four to forty-eight hours the rash extends over the trunk and extremities. At first it is rose-

pink in color and slightly elevated, but it presses out completely. After a day or two the spots become redder, then they darken, become livid, and cease to press out completely. In the severer cases on fading they leave dark, pigmented brownish areas. In the mild cases the rash may fade before it reaches the darker, hemorrhagic form. The spots vary in size from the diameter of a pin head to that of a pea, and they have irregular faded margins.

A flushing of the face is likewise very characteristic and varies in its distribution. This later assumes a dusky, cyanotic color.

A slight stiffness of the neck is found in the majority of the cases. At times this is very pronounced. A Kernig's sign may be present on one or both sides. This is slight at times and again it is marked.

Muscle sensitiveness is quite common. The extreme sensitiveness of the calves described by many did not form a prominent feature here. Where the cases are extremely sick the whole muscular system frequently becomes sensitive.

Due to the difficulties with the language and the condition of collapse of many of the patients on admission, a perfectly satisfactory examination of the spleen was impossible. Usually the area of splenic dulness was enlarged.

The throat manifestations are very interesting. Sordes appear soon and the mouth becomes very foul. The mucous membranes of the mouth and pharynx become reddened early. As the disease advances the mucus becomes dried and more viscid.

Bronchitis is as frequent as in typhoid. On the whole the respiratory symptoms here are more prominent and severe than in typhoid. The picture may closely resemble pneumonia. In some cases the respiratory rate rises to thirty or forty. The lung signs, however, remain relatively slight as a rule. Cough is a fairly constant symptom.

Circulatory weakness is extremely common. But the pulse and the temperature show no constant relation. In the sicker cases the blood pressure drops to a low mark. The pulse pressure is then likewise low and the pulse feels weak, irregular, and thready. A dicrotic pulse was not common in this group.

As a rule the gastrointestinal symptoms are not prominent. Delirium varies in kind and in degree. Some have the low muttering type with tremor; others have delusion; and again others show the violent variety similar to the alcoholic delirium.

The three main types of typhus which were noticeable in this epidemic were:

- The asthenic form* in which the patient lies on his back in a semiconscious condition, breathing through his mouth. There is marked emaciation with weakness.

- The respiratory form*. Such patients appear to have pneumonia.

- The comatose form*. Coma is the prominent feature here and suggests the uremic state.

The complications are very various. In the wake of the dirty month a middle ear infection or parotid gland infection, or an ulcerated throat may appear. Bed sores are very difficult to avoid even with competent nursing. Abscesses are common and pneumonia is moderately common. A frequent complication of the face is herpes. Gangrene, which is rare in most infectious disease, is common in typhus. It appears especially on the nose, cheeks and feet. It is rarely seen except in cold weather.

PAPER OF DR. A. W. SELLARDS.

(Lady Paget Hospital and the Military Hospital in Belgrade.)

THE MODE OF TRANSMISSION AND THE ETIOLOGY OF TYPHUS FEVER.

One may fairly safely venture into the midst of an unknown infectious disease if certain important precautions be observed. Measures must be adopted against contact with insects and against droplet infection. The water and food supply, in addition, should be above suspicion. As a knowledge of the mode of transmission of this disease is still in dispute, so far as certain details are concerned, it was necessary for the members of the commission who studied in Serbia to observe all these precautions.

A one-piece garment extending from the toes to the neck with attached gloves was usually worn next to the skin. This, as a rule, was covered with the customary hospital gown and shoes. The hair was clipped short. A surgeon's cap and face mask completed the outfit. This form of dress was necessary as the great number of new patients prevented the adoption of successful measures against lice. The Austrian prisoners, however, were very conscientious in their efforts to keep the premises louse-free.

As the living quarters were clean of insects the uniforms were removed on leaving the wards. After each visit the suits were sterilized,—usually with chloroform vapor overnight.

The evidence in support of the louse mode of transmission is still incomplete in certain respects. Nicolle, Anderson and Goldberger, and Ricketts and Wilder have all satisfied themselves that the louse is capable of transmitting the disease. The criteria of each set of observers, however, are not accepted by the others. Nicolle found a rise in temperature in his feeding experiments but encountered no true immunity. Ricketts and Wilder, on the other hand, saw no rise in temperature. All of their animals had immunity. They regard all monkeys as susceptible to typhus. Anderson and Goldberger found much immunity among their monkeys.

The virus of typhus, according to Nicolle, passes through a definite cycle. The louse is its host for about seven to nine days. Ricketts, however, found that subsequent to the first week after feeding lice with the virus of typhus they remained infectious as long as they lived. It is the belief of all workers in this field that the disease does not spread as a single direct transmission.

There have been a few human experiments recorded. Two of Nicolle's assistants were accidentally bitten by infected lice. Neither developed typhus. Recently some notes have been published about a gardener in a foreign jail who dropped some lice infected with the disease down a prisoner's neck. In ten days the prisoner developed typhus fever.

Though the louse may furnish the common mode of transmission, other avenues of infection may exist. Droplet infection requires some further consideration.

Concerning the etiology, typhus falls among the acute exanthemata in many respects. From its clinical symptoms, typhus would not appear to be a protozoan disease.

Demonstration of scenes in Serbia with the reflectoscope.

DISCUSSION.

DR. STRONG: The most striking features of the Serbian epidemic were the high percentage of pharyngitis and laryngitis, the high percentage of the complication gangrene, and the high mortality. Three members of our commission who devoted their time to the study of the etiology of typhus in association with a worker from the British unit and one from the French unit were all unable to confirm the findings of Plotz. It has recently been confirmed that the blood of typhus patients is sterile,—a differential point from typhoid.

DR. CHRISTIAN: In America we have had some experience with typhus fever. There is a bronze tablet over a railroad bridge in Montreal which commemorates the death of several hundred people in an epidemic of this disease during its construction. Epidemics have also visited Sparrows' Point, Maryland, and New York City.

DR. F. C. SHATTUCK: Where we hear about the details of typhus from the lips of those who have just been in Serbia, it becomes clear why typhoid and typhus so often travel together.

DR. STRONG: The whole question of the etiology is still an open one. We should have a commission appointed to study typhus.

ERNEST G. GREY, M.D., *Secretary.*

RENAL PATHOLOGY AND THERAPEUSIS.*

ACIDOSIS.

DR. F. W. PEABODY. Few subjects at present are receiving more attention than that of acidosis; and its frequent occurrence in children, its great importance in diabetes and its occurrence in chronic nephritis make acidosis a subject that should be well understood. Acidosis does not mean an actual change in the reaction of the body fluids, for their reaction is remarkably constant. The mechanism to prevent acid accumulation or a change in the blood reaction acts in four different ways:

- (1) The large supply of bases in the body tissues may be drawn upon.
- (2) Kidney excretion *e.g.* phosphoric acid.
- (3) Lungs—CO₂ is removed.
- (4) Changes may take place in blood composition to neutralize acid.

If we consider the blood as a mixture of volatile and non-volatile acids with a definite limit to total acidity, it becomes plain that an increase in the amount of non-volatile acid takes place at the expense of the volatile CO₂. Thus the CO₂ the blood can carry decreases as the non-volatile acid increases and the CO₂ in the blood becomes an index of the formation of acidosis.

The dyspnoea of chronic nephritis is related to acidosis, but not solely due to it. Patients with chronic nephritis are more susceptible to CO₂ in inspired air and to other causes of dyspnoea. But the periodic respiration of advanced chronic nephritis, more or less distinctly Cheyne-Stokes in type, is

probably due not to simple acidosis but to changes in the respiratory center. There is a hypo-excitability of the respiratory center, which is interrupted by periods of increased excitability.

DR. CHANNING FROTHINGHAM, JR.: The tests of renal function here considered concern themselves with the function of the removal of water salts and the products of metabolism, and not with any internal secretion which the kidney may have.

In the past various tests have been used, since to be abandoned. Among these are cryoscopy, the electrical conductive power of urine, the excretion of methylene blue, rosaniline, phloridzin, lactose and KI.

At present the following tests of renal function are employed:

- (a) The relation of urine output to fluid intake.
- (b) Salt excretion compared with salt ingestion.
- (c) Nitrogen excretion compared with nitrogen ingestion.

The above three must be studied in 24° specimens, and in (b) especially exact knowledge of the intake is requisite.

- (d) The excretion both as regards promptness and amount, of six milligrams of phenolsulphonaphthalein injected in solution intramuscularly. Specimens of urine taken one hour and ten minutes after the injection and then again one hour subsequently are made alkaline and their phthalein content is estimated by calorimetric means. The two-hour total is probably more important than the relation of the first and second hours' production, so that usually only one specimen is taken at the end of two hours and ten minutes. Fifty per cent. excretion is a good standard to take as a minimal normal for the two-hour specimen.

The two qualifications of this test are that it is not a good diagnostic sign in early chronic nephritis, and it may be present as the result of mere passive congestion.

- (e) Incoagulable protein in the blood as shown by method of Folin and Dennis. Below 30 mg. in 100 c.c. is normal incoagulable protein. Over 50 mg. would make the prognosis grave. Between 30-50 mg. of incoagulable protein have been found in acute infections, or where chronic nephritis could not be proved, but above 30 is ordinarily pathological. High nitrogenous diet may greatly increase incoagulable protein in cases with nephritis, so patient's diet must be known.

- (f) Schlayer's test, which is positive when a patient who has been on a known salt intake for four to five days fails to excrete 10 gms. of added salt in 48 hours. Frequently salt excretion doesn't increase at all. This test is positive early in the course of nephritis but doesn't increase after a certain point is reached. Experience at the Peter Bent Brigham clinic indicates that sodium retention is found in chronic nephritis generally and is not limited to one type.

- (g) Monakow's test, which is positive when a patient who has been on a known diet fails to excrete 20 gms. of urea (10 gm. of added N) in 48 hours. This is not a valuable test for the early stages of the disease.

* Lectures at the Harvard Medical School on Dec. 17, 1915.

- (h) Hedinger and Schlayer's test, in which on a known intake of NaCl, N and water in five known and varying meals the excretions of these substances are studied in two-hourly samples (plus one night sample). The normal kidney in these periods should excrete different amounts of urine, different amounts of salt and nitrogen and at different concentrations.
- (i) The Ambard test of the concentration of salt and nitrogen in the urine of a 2° period as compared with the concentration of the same substances in the blood taken at the middle of this period. This has been worked out by McClean as a formula giving numerical index expressing the relation between the urea nitrogen and salt of the blood and urine. Van Slyke's method of determining urea with urease is the simplest way to study nitrogen excretion.

DR. HENRY A. CHRISTIAN: Tests of renal function constitute one of the most valuable procedures in the care of chronic nephritis, and certain of these tests are applicable without the complete laboratory equipment of a large hospital.

(1) Phthalein test gives valuable information and requires only a few test tubes, a 1000 c.c. flask and a hypodermic syringe. The phthalein comes in ampoules ready for injection, and one of these may easily be diluted to 50, 40, 30, 20 and 10 per cent. solutions, stoppered and kept for future calorimetric readings.

(2) The Hedinger and Schlayer diet has been modified for use at the Peter Bent Brigham Hospital. It depends on there being approximately the same amount and same sort of food each day with a known fluid intake. The amounts of fluid in each two-hour collection are important, especially the night specimen (normally about 400 c.c. on a 2000 c.c. 24° intake) and the specific gravity of the different two-hour specimens shows how promptly and how adequately the kidney can concentrate its solids.

The salt should be quantitated absolutely and by its percentage, thereby affording an idea of the kidney's ability to handle salt and of the amounts to give in the diet.

It is not worth while to quantitate the nitrogen ordinarily, for knowledge of amount and specific gravity of urine, and amount and concentration of salt give the most important data in estimating renal function.

The Management of Cases of Chronic Nephritis.

- (1) Patients with hematuria should be rested in bed for two to three weeks. If hematuria does not stop, patient should get up and get some exercise to avoid loss of muscular tone and discouragement.
- (2) Chronic nephritis with hypertension should always be rested to prevent cardiac decompensation. Oedematous patients also should rest.
- (3) No prolonged cold baths should be taken, and especial care against chilling should be taken after two hot baths or sweats per week.
- (4) The cathartics often are used too much. Oedema, and definite uremic or toxic symptoms are the only conditions calling for marked watery catharsis. Vegetable cathartics occasionally are valuable to prevent salt

storage. Calomel is probably contraindicated.

- (5) Presence of oedema indicates that a marked reduction should be made in fluid intake. Hypertension indicates simply that some reduction should be made. Watch the ratio, 1500 output, 2000 intake, and cut down fluids if they are not well excreted.
- (6) Cut down salt in presence of oedema, or where it is inadequately excreted.
- (7) Diet. Eight hundred c.c. of milk, in acute conditions, but milk is too high in protein and salts, to constitute sole diet of larger caloric value. Use starchy food instead, use one or two eggs and one slice of meat (except salt meat) at another meal, and as much vegetables as patient wants. Cut out meat and eggs one day a week, and all alcohol. Tobacco, tea and coffee may be left in.
- (8) Diuretics put increased work on the kidneys, and if renal function be below a certain level, diuretics are ineffective. Oedema is the chief indication. Theocin is probably the best diuretic with a competent kidney. Caffein and theobromin-sodium-salicylate may be effective, differing often in which is the more effective. Sodium citrate is not a diuretic without water.

H. A. CHRISTIAN, M.D.,
A. GREGG, A.B.

Book Reviews.

The Clinics of John B. Murphy, M.D. At Mercy Hospital, Chicago, August and October, 1915. Published bi-monthly. Philadelphia and London: W. B. Saunders Company. 1915.

Both the August and October volumes contain an unusually large number of articles, although the volumes themselves remain the same size; it is, of course, obvious that the articles must necessarily be short. In the August number there are no less than thirty-two headings, practically every one of them including a brief description of an operative procedure. There is a series of cases illustrating surgery of the head, skull and spine, and a considerable number of fracture cases. It is impossible within the short space to enumerate even so many different headings. In the October number there are twenty-seven headings, including a talk by Dr. William B. Coley of New York City, upon carcinoma and its treatment with the mixed toxins. Dr. Murphy describes his operation for recurrent luxation of the humerus, and a large number of very complicated fractures, as well as a series of cases illustrating surgery of the chest, kidneys and the joints. The text, photographs, x-rays and cuts continue to be, as they have been in the past, interesting and suggestive.

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ADMISSION TO THE STATE TUBERCULOSIS SANATORIA.

In spite of circulars of information which have been sent at various times to every physician in the commonwealth, there seems still to be considerable misunderstanding as to exactly what class of consumptives the state desires to care for in its four sanatoria.

Since its opening in 1898, the Rutland State Sanatorium has been reserved for patients in the incipient, early and favorable stages of the disease. This has not prevented in the past, nor does it prevent now, the admission of many far advanced cases whose presence helps to defeat the very purpose for which the institution was planned. The admission of such advanced cases was made easy when the filing of applications for this and the other sanatoria was given over to the medical profession of the state at large instead of being confined, as it was prior to 1910,

to a small group of special examiners. In view of this condition of affairs, whereby patients who were classified as incipient on their application blanks were found to be advanced on admission, and were constantly filling up beds at the sanatorium, and also because there was nothing to prevent a patient, who might be an incipient and early case upon entrance, from remaining at the institution indefinitely until he became a far advanced and dying consumptive, the board of trustees has made two important regulations which should be clearly understood by the doctors in this commonwealth.

The first of these was to limit the residence at the Rutland Sanatorium to two years. At the end of this two years' time patients are transferred to another sanatorium or to some local hospital, or elsewhere. This has already had good results in that a fairly large number of chronic cases have been transferred to a more suitable place. It is the intention of the board to reduce this period of stay still further, probably to eighteen months or a year, it being held that if a patient cannot gain or reach an arrested condition in a year or eighteen months, his place should be given over to someone else.

In addition to this and of still greater importance, the board has passed a rule whereby every patient, favorable or unfavorable, entering the institution is placed on trial for a period of one month. If at the end of this month's period of observation he or she is found to be unfit for the purposes for which the institution was planned, the patient is removed to another sanatorium. Although this causes heartburnings on the part of certain patients, it can readily be seen that in the long run it will do much good.

So far the board has applied this rule only to patients who are physically too far advanced or too sick for the Rutland Sanatorium. It is probable, however, that in the future, as the number of local tuberculosis hospitals increases, the line will be drawn tighter and certain patients will be sent away not because they are too sick, but because they are not sick enough. There is a growing tendency in the medical profession of this state, especially in those dispensaries which are designed and planned solely for the diagnosis and treatment of tuberculosis, to advise and urge sanatorium treatment for patients who present signs not of tuberculous disease but of tuberculous infection. The difference between the two

is evident. While such a patient will undoubtedly be benefited by a stay at the sanatorium, even if his signs of active disease may be only of the slightest, it is manifestly not fair to the others urgently in need of treatment for the beds to be kept filled in this way.

The physicians in this state, therefore, are urged to remember that the waiting list for the Rutland Sanatorium is a very long one and to use every care in the selection of cases whom they recommend for this institution.

While at the other three sanatoria at North Reading, Lakeville and Westfield the admission is not by any means limited to patients in the early and incipient stages, it has been deemed advisable, as the result of the experience of the past four or five years, to decline to take patients in the far advanced and progressive stages of the disease. In the year 1910, when these three institutions were first opened, the number of beds in local tuberculosis hospitals was very small. Therefore, rather than let beds in the new institutions lie vacant, they were at once filled up with those patients for whom application was first made and who were urgently in need of treatment. This resulted in the admission of a very large number of far advanced cases and the subsequent unfortunate result that the sanatoria became known as homes for advanced consumptives. Gradually the number of beds in local tuberculosis hospitals has increased and it is hoped that the strain on our state institutions will be diminished. While, therefore, the board of trustees has no hard and fast rule in regard to the admission of far advanced consumptives and in special instances is willing to make exceptions, as a general thing it does not wish to accept this class at the sanatoria. The reasons for this are manifest. These institutions are intended and built to be sanatoria in fact as well as in name. Real sanatorium work cannot be done when the beds are filled with far advanced cases. Of still greater importance, however, is the fact that these far advanced cases in many instances leave the institution and return to their own homes to infect others at the very time when they are most urgently in need of institutional supervision. Physicians therefore are urged to use every means at their disposal to send this class of patients to local tuberculosis hospitals rather than to make application for them to enter a state sanatorium.

A NEW CONSULTATION CLINIC.

THE new Consultation Clinic at the Massachusetts General Hospital, notice of which is given on the last page of this issue of the JOURNAL, is one of the more significant medical events of recent years. Judged by conservative standards, it is an encroachment by the hospital upon the territory of individual physicians; from a more enlightened point of view, it is a further step towards improving the service which the medical profession as a whole renders the public. Whether great oaks will grow from this acorn is a matter of speculation; it may come to treating the population of cities through the medium of hospitals, which seems to us a much better solution of the problems raised by Bernard Shaw in the preface to "The Doctor's Dilemma" than would be found if medicine became a function of the state.

The theory of the clinic is to provide for people "of moderate means" a way of securing for their ills as nearly correct a diagnosis as can be reached by first-class present day methods, and to provide this without pauperizing those who take advantage of it, or forcing them to lie about their financial condition.

Any move as radical and as untried as this, is fair game for criticism, and it is, of course, probable that many of the details will require readjustment. The fee of five dollars, which it is proposed to charge, seems to many to be too small a return for the amount of investigation which will be required by some of those who apply. On the other hand, it may be that many cases sent to the hospital for diagnosis, and now admitted gratis to the regular Out-patient Department, will be honest enough, and indeed will prefer to pay the fee demanded by the afternoon clinic. The prevention of abuse of the privilege will depend upon the care with which physicians select the patients whom they refer.

One point seems clear; there can be no doubt that the Consultation Clinic will benefit the public—the people for whose advantage the profession of medicine was invented. This will not be due to successful individual diagnoses alone; it will follow, later on, that people will demand more accurate diagnoses and the application in their own cases of some of the more scientific diagnostic methods, such as they or their friends have seen employed at the hospital. In this way certain of the fatal results which we now see—the postponement of cystoscopy until the

tumor is beyond treatment, for instance—will be avoided, and the general standards of medical practice will be raised.

That the Clinic will work hardships for the general practitioner seems improbable; he will be aided in his management of the case, and if the disease is one which he is unsuited to treat, the sooner he learns that fact the better for his reputation. If, as is requested in the circular which the Massachusetts General Hospital is sending to physicians, they accompany their patients, the Clinic may come to occupy a very important place in the post-graduate education of the medical profession.

The success of the clinic will depend primarily upon the attitude assumed towards it by the general practitioners of Massachusetts. They can feel sure that the staff of the Massachusetts General Hospital will give satisfaction, and the provisions which are being made, to the end that each consultation will be answered by a personal letter from one of the men who examined the case, insure an intelligent and satisfactory response.

That the Clinic will succeed is not only our sincere wish, but our conviction. The principle is sound; we believe that physicians will be quick to appreciate its advantages, both to their patients and to themselves.

MODERN EUTHANASIA.

THE recent public outburst over a case, in which the life of a defective newborn was not prolonged by an operation for artificial anus, again brings to light the ever-increasing interest of the public in the problems centering around the control of the defective element in society; not that this interest is an entirely new one. It dates from the early Greeks, who exposed their weaklings to the elements to perish, and has come down to us, through all the many methods suggested to overcome racial weakness from overpopulation or otherwise, to the present modern desires to prevent the inception of the defective by prohibiting the mating of defectives, of requiring all prospective mates to undergo physical examination to determine their freedom from disease or defect, or in the more radical procedure of requiring the sterilization of the defective element in society. And whether it is

the exposure of the weak or the sterilization of the defective, they are all euthanasia in principle, since they prevent the coming into being or the further development of human beings, only that the modern method is far more comprehensive than the ancient. The most radical methods of preventing conception are not nearly so successful as surgical sterilization. Indeed, while law prohibits disseminating this knowledge or otherwise actively aiding this end, the legal status of the surgical method of preventing conception has not yet been determined.

In spite of the universally accepted hereditary nature of most defective conditions, little is known of the method or scheme of transmission. It is for this reason that this form of euthanasia by sterilization of defectives is opposed by many scientific and race-proud people. It must be remembered that not all the offspring of known defectives are necessarily defective, nor any, indeed. Dominant and recessive qualities are not blended in the germinal cells into transitional types, and transmitting blends of commensurate inferiority, but they are grouped so that either type in general only may become patent generally, or specially only as to certain qualities. In a series of offspring resulting from the mating of dominant and recessive types, both good and bad may result, with an evolutionary tendency in the predominance of dominant types. If the number of the offspring is small, perhaps only the defective part of the series may be born. This is given as an explanation for the presence of norms or even genius in known defective families.

The question that naturally arises is whether, in sterilizing, it is right to sacrifice the lives-to-be of the possible normals in order to destroy those of the possible abnormal? Practically, this radical procedure would simmer down to the defective inmates of institutions or prisons, and would not reach the larger number of both kinds who are at large and who have, therefore, an unrestricted opportunity for propagating their kind. In some states that have passed sterilization acts, the acts have been declared unconstitutional as being "cruel and unusual punishment." Besides, these laws sanction a form of prevention of conception more radical than the usual methods which are prohibited as against public policy. To sanction this procedure in known defectives would consistently be to sanction it in individuals who, while themselves not defective, come from defective stock, or in indi-

viduals of grossly bad environment and great fecundity. The question is a new one, with scientific knowledge still meagre, and it will, therefore, perhaps be better until more is known about the ethnic tendencies of the human race, to go slowly with radical innovations. Euthanasia and eugenics, in whatever forms, are yet but ideals—perhaps only fetishes.

LIBRARY OF THE HARVARD MEDICAL SCHOOL.

THE report of the librarian of the Harvard Medical School shows a commendable increase in the number of volumes, pamphlets and reprints which have been added to the school libraries. There have been purchased 105 volumes, 388 have been received as gifts and 2000 have been transferred from the Harvard College Library. These, with a number from other sources, make the total number of volumes added for the year to be 3100. Pamphlets and reprints number 11,670, and government publications number 397. The library now includes 27,000 volumes and 46,067 pamphlets. It is interesting in this connection to compare this with other medical libraries in the country. The College of Physicians of Philadelphia contains 105,540 volumes; the New York Academy of Medicine, 100,320; the Boston Medical Library, 83,107; and Johns Hopkins Hospital, 17,000. The attendance has also increased, especially at the Central Library, which now is open for five evenings each week until ten o'clock.

In addition to these volumes, the Library has been presented with a large number of interesting and valuable pictures and manuscripts. Dr. J. T. Bottomley gave several pictures of Boston physicians, and Dr. M. J. Rosenau over one hundred prints of German men of science. Dr. E. H. Bradford, besides presenting the Library with several pictures and an album of photographs of the Massachusetts V. A. A. Hospital Ship "Bay State," contributed a pamphlet by Aaron Dexter, entitled, "Account of a Locked-Jaw. Boston, 1790." A manuscript of a lecture on the "Use of Tobacco," by Benjamin Waterhouse, Cambridge, 1805, was given by Dr. Bowditch. A set of three volumes of manuscript notes of the lectures given by Dr. Francis Minot, was presented by his daughter and grandson. These manuscripts and prints are displayed in

two glass cases presented by the Harvard Medical Alumni Association.

MEDICAL NOTES.

FIRE IN A HOSPITAL.—The Isolation Hospital of Jersey City was seriously damaged by fire on December 15, and only by prompt action on the part of nurses were the twenty-three children who were ill in the building, taken to a place of safety. No one was hurt.

TYPHUS FEVER IN MEXICO.—Report from Mexico City on December 16 states that the epidemic of typhus fever in that city, which was noted in the issue of the JOURNAL for December 16, still continues, but that drastic measures for combating it have been undertaken by General Carranza. A special corps of sanitary police has been organized to undertake the thorough cleaning of all public and private buildings in the capital and surrounding towns.

"Public baths and barber shops will be established and persons of unclean appearance will be forced to bathe and change their clothing. The fresh clothing will be furnished free by the government. The sale of alcoholic liquors is to be absolutely prohibited, and public places of amusement will be disinfected daily and forced to close at eleven o'clock each night. Uncleanly persons, no matter what their social class, will be denied admission to street cars or other public vehicles. Heavy penalties in fine or imprisonment are to be applied to all who fail to comply with the sanitary orders.

"Up to date thirteen cases of the fever have been registered in the American and English colonies here. Many more cases have been noted in the other foreign colonies. In the aggregate, however, the number of cases in the foreign settlements is infinitesimal compared with the Mexican cases.

"The vigorous measures of the government to combat the disease are meeting with the warm approval of the people. The army is coöperating with city officials, 400 soldiers being detailed to clean barracks, and make the posts sanitary. On Nov. 29 it was estimated there were 11,000 cases of typhus fever in the Federal district and neighboring towns. The death rate exceeded 130 persons a day."

Further report by way of Laredo, Texas, on December 18, states that the total number of cases of typhus fever during the present epidemic is estimated from 20,000 to 60,000.

DRY STREET SWEEPING METHODS.—On December 18, the committee of public health of the New York Academy of Medicine presented a report to that body on the subject of street cleaning systems, and emphatically condemned all meth-

ods of dry sweeping on account of their danger to health. The report recommended the adoption of wet sweeping methods, with adequate flushing to keep the streets as free as possible from dust.

GOATS' MILK FOR INFANT FEEDING.—The weekly bulletin of the New York Department of Health for December 18, 1915, states that a number of medical authorities have advocated the more extensive use of goats' milk for infant feeding, the main reason being the well-known immunity of goats to tuberculosis. In some parts of Italy goats' milk is the common milk of commerce, herds of goats being driven through the streets and milked before the eyes of the customers. So far as the immunity to tuberculosis is concerned, the use of goats' milk in infant feeding is advocated, not alone because of the absence from the milk of tubercle bacilli, but because it has been thought that the milk might perhaps contain immune bodies which would show positive action in preventing tuberculosis or favorably influence the course of a tuberculous infection already established.

An interesting experiment in this connection has recently been undertaken at Sea View Hospital. A herd of twenty-six goats bred by the U. S. Department of Agriculture, mostly of Saanen and Toggenberg stock, has been placed at the disposal of the hospital by the Federal authorities. This permits of the feeding of 125 children. In order to follow the matter intelligently, Dr. E. S. McSweeney, Medical Director of Sea View Hospital, has arranged for the co-operation of the Health Department Research Laboratory. This will enable the hospital authorities to supplement their clinical observations with careful laboratory data.

The outcome of the experiment will be waited with interest. Certainly every means should be employed for reducing tuberculous infections in infancy.

MEDICAL EXAMINATION DAY.—In last week's issue of the JOURNAL we noted the occurrence of medical examination day on December 8.

Medical Examination Day met with a very hearty response on the part of the people of New York City. Although Wednesday, December 8, was designated as Medical Examination Day, many persons called at the various clinics and offices of the Department of Health on Monday and Tuesday. A large number applied for examination yesterday, and everywhere there seemed deep appreciation of the new work which the Department of Health is attempting to inaugurate.

Medical Examination Day has opened up an entirely new conception of the proper work of dispensaries. Instead of devoting most of their efforts to cure disease already established, which is, of course, their oldest and hitherto most im-

portant function, dispensaries should take a substantial part in preventive medicine by arranging conferences and medical examinations of persons who are not yet ill. In this way, they could undoubtedly detect a very large proportion of serious disorders in their incipiency, or rather, they could detect symptoms which, if allowed to progress, would lead to serious disease. The Department of Health has taken this matter up with the Associated Out-Patient Clinics of New York, and it is hoped soon to be able to announce the definite establishment of this form of preventive work.

INCREASE OF PNEUMONIA IN NEW YORK.—Figures concerning last week's deaths in New York City, compiled by the Department of Health, show that during the week just passed, 1569 deaths occurred in the city, as compared with 1409 during the corresponding week of last year. The respective rates per 1000 population are 14.10 and 13.09. "This increase," said Registrar Guilfoy, "is due principally to the heavy mortality from pneumonia and the allied diseases and appears to be associated with the blizzard. Lobar pneumonia alone not only showed an immense increase in the mortality over the corresponding week of last year, but a very decided increase over that of last week."

There were approximately 1500 new cases of pneumonia in the city last week. The contagious diseases showed practically no increase in mortality during the past week, as compared with the corresponding week of 1914.

Examined from the viewpoint of age groupings, the mortality was highest in the middle and later periods of life. The mortality of children under five was lower than during the corresponding week of last year. The difference of 1.01 in the weekly rate is equivalent to an increase of 112 deaths. The death rate for the first fifty-one weeks of 1915 is 13.56, as compared with 13.66 for the corresponding period of last year.

SEIZURE OF KIDNEY CURES.—Action against several so-called "kidney cures" has recently been taken under the Food and Drugs Act by the United States Department of Agriculture. In one case the shippers of a preparation labeled as "A Sure Cure for Bladder and Kidney Trouble" were prosecuted on the charge of falsely and fraudulently misbranding the product. They pleaded guilty and were fined \$25 and costs by the court. This particular kidney "cure" was found to contain over 41% of alcohol. It was labeled "Old Jim Field's Phosphate Dill and Gin, Mankind's Greatest Friend, A Sure Cure For Bladder and Kidney Trouble. It is also a Great Aid in Case of Urinary Trouble. Allenberg & Meister, Sole Agents, Memphis, Tenn." An analysis of the product showed that it contained no material amount of either dill or phosphate.

In another case, 48 bottles of "Stuart's Buchu and Juniper Compound," prepared by the Stuart Manufacturing Company, Atlanta, Georgia, were seized. The court issued a decree of condemnation, forfeiture, and destruction on the ground that the claims upon the label were misleading, false, and fraudulent. On this label the manufacturers recommended their product as a remedy for a great variety of kidney and bladder diseases and stated that the medicine contained 16% of alcohol.

A MEMORIAL TO EUSTACHIUS.—In the issue of the *Lancet* for December 4 is contained the following account of a bronze memorial to Eustachius recently erected at the University of Bologna :

"Bartolomeo Eustachi, better known as Eustachius, was the sixteenth-century anatomist, who divides with his great rival Vesalius the post of honour as a pioneer in that *métier*. Born at San Severino in the Marches, he died in 1574 after a life-long tenure of the Chair of Anatomy in the Roman school, during which he impressed relays of pupils, Italian and foreign, as not only an inspiring exponent of the science, but as a devoted exemplar of the experimental or inductive method, and, on these lines, an enrieker of its subject-matter. The monument, a *chef d'œuvre* of the sculptor Giuseppe Tommini, represents the stately figure of Eustachius in academic robes, delivering from his chair a lecture to his students. In his left hand he holds a human cranium, while his right rests on the plates on which is engraved the intimate structure of the ear. On either side are grouped his young listeners in attitude of rapt attention. The ornamentation above consists of surgical instruments artistically disposed, and below the inscription, from the pen of Signor Giri, professor of Latin, runs as follows:—

Bartolomeo Eustachio
Pienti
Artis Anatomicae Lumini
Senatus Academicus
Quartis Feriis Secularibus
Anno MDCCCCXIV.

"The unveiling was preceded by a brief discourse from the Rector Magnificens, Professor Tonelli, in presence of His Excellency the Prime Minister, Signor Salandra; the Minister of Public Instruction, Signor Grippo; the Syndic, Don Prospero Colonna; the Senatus Academicus; and an effective representation of the scientific, artistic, and literary bodies of Rome."

COMPARATIVE MORTALITY IN 1849.—In a report of the New Orleans Board of Health for 1849, are noted the following comparative death rates in four large American cities in that year: Boston 22 per thousand, New York 27, Charleston, S. C., 25, and New Orleans, La., 66.

AMERICAN FIRST AID CONFERENCE.—As the result of a resolution passed by the American First Aid Conference, President Wilson has appointed the following Board of Standardization, to a study of the problems of first aid, with a view to improving the methods and equipment and to standardize them for the various industries as far as possible. The Board will report the results of its investigations at the next meeting of the conference.

Chairman.—Dr. Richard H. Harte, of Philadelphia, Pa., representing the American Surgical Association.

Secretaries.—Assistant Surgeon-General W. C. Rucker, representing the Public Health Service; Dr. J. Shelton Horsley, of Richmond, Va., representing the American Medical Association; Dr. S. C. Plummer, of Chicago, Ill., representing the American Association of Railway Surgeons; Major Robert U. Patterson, representing the War Department and the American Red Cross; Surgeon A. M. Fauntleroy, representing the Navy Department; Col. Louis A. Lagarde, U.S.A. Retired, representing the War Department; and Dr. J. P. Kaster, Topeka, Kansas, representing the Association of Railway Chief Surgeons.

The following committees are among those already appointed to coöperate with the Board of Standardization. Each State Medical Society has been invited to follow suit.

The American Medical Association (Surgical Section).—Dr. F. B. Ladd, of Boston, Mass.; Dr. S. F. Mitchell, of Washington, D. C.; Dr. J. M. Wainwright, of Scranton, Pa.

The American Surgical Association.—Dr. Edward Martin, of Philadelphia, Pa.; Dr. Emmet Rixford, of San Francisco, Cal.; Dr. J. B. Blake, of Boston.

The Southern States Association of Railroad Surgeons.—Dr. Southgate Leigh, of Norfolk, Va.; Dr. Bacon Saunders, of Ft. Worth, Texas; Dr. Ambrose McCoy, of Jackson, Tenn.

District of Columbia Medical Society.—Dr. Charles S. White, of Washington; Dr. Wm. P. Reeves, of Washington; Dr. H. H. Kerr, of Washington.

Conference Board of Physicians in Industrial Practice.—Dr. John J. Moorhead, of New York City; Dr. W. Irving Clark, of Worcester, Mass.; Magnus W. Alexander, of West Lynn, Mass.

ASIATIC CHOLERA IN THE PHILIPPINES.—Report from Washington, D. C., states that before the Philippine committee of the Senate, on December 17, 1915, a surgeon of the army medical corps stated that during the past year there were 10,000 deaths from Asiatic cholera in those islands, the majority of which were due to the inefficiency of the native Filipino health officials.

PREVALENCE OF MALARIA, PELLAGRA, SMALLPOX AND TYPHOID FEVER.—The weekly report of the United States Public Health Service for December 10, 1915, states that during the month of

October there were in Mississippi 21,654 cases of malaria, 888 of pellagra, 119 of smallpox and 718 of typhoid fever. During the same period there were in Arkansas 95 cases of pellagra and 153 of typhoid. There were 49 cases of malaria and 104 of typhoid fever in California, and in Kansas 218 cases of typhoid and 83 of smallpox.

LONDON DEATH RATES IN OCTOBER.—Statistics recently published show that the total death rate of London during October, 1915, was 14.6 per 1000 inhabitants living. Among the several districts and boroughs, the highest rate was 20.3 in Finsbury, a crowded central region, and the lowest was 9.8 in Wandsworth, a populous southern suburb.

EUROPEAN WAR NOTES.

CHICAGO WARD AT AMERICAN AMBULANCE.—Report from Chicago states that at a public meeting in that city on December 16 the sum of \$10,000 was raised by popular subscription to establish and maintain a Chicago ward in the American Ambulance Hospital at Neuilly, Paris.

CHOLERA IN AUSTRIA HUNGARY.—The weekly bulletin of the United States Public Health service for December 10, 1915, states that during the period of three weeks ended on September 11, there were reported in Austria 6761 cases of Asiatic cholera with 4117 deaths. During the fortnight ended October 3, there were in Hungary 561 cases with 333 deaths. A large majority of all these cases was among the civil population. Since October 2, the number of all cases has rapidly diminished. There have been only 743 cases in all Austria since that time.

WAR RELIEF FUNDS.—On Dec. 25, the totals of the principal New England relief funds for the European War reached the following amounts:

Belgian Fund	\$77,413.27
Serbian Fund	58,042.07
Allied Fund	44,562.80
French Fund	32,132.82
Armenian Fund	26,447.06
Surgical Dressings Fund	16,324.00
LaFayette Fund	13,958.99
Italian Fund	13,772.02
Polish Fund	11,701.08

BOSTON AND NEW ENGLAND.

THE WEEK'S DEATH-RATE IN BOSTON.—During the week ending December 25 there were 242 deaths reported, with a rate of 16.86 per 1000 of population, as compared with 207 and a rate of 14.66 for the corresponding week of last year. A notable difference was a total of 44 deaths from pneumonia against 26 last year.

There were 40 deaths under 1 year and 76 over 60 compared respectively with the totals 35 and 70 last year.

Deaths under 1 year reported in 51 weeks from Jan. 2 to Dec. 25 were 1967 against 1954 for the corresponding period in 1914.

During the week the number of cases of the

principal reportable diseases were: Diphtheria 49, scarlet fever 44, measles 51, typhoid fever 1, whooping cough 50, and tuberculosis 39. Included in the above were the following cases of non-residents: Diphtheria 10, scarlet fever 1 and tuberculosis 2.

Deaths from these diseases were: Diphtheria 4, scarlet fever 1, measles 2, whooping cough 4, and tuberculosis 18; and included in these were the following deaths of non-residents: Diphtheria 3, scarlet fever 1, and tuberculosis 1.

The total number of 1915 deaths reported to noon of Dec. 26 was 11,626 against 11,509 in the same period last year. For the balance of the year 1914 there were 322 deaths reported, making the 1914 total 11,831 and the death-rate 16.06 the lowest rate Boston ever had. If the number of deaths to complete this year's total be also 322 then the total for 1915 will be 11,948 and the death-rate 15.96,—a new low record.

FIRE IN THE MARINE HOSPITAL, CHELSEA.—A fire which seriously alarmed patients in the Marine Hospital at Chelsea, occurred recently in a storage room of the building. The hospital was at no time in danger, but the smoke rose to the wards and 63 patients had to be moved to another part of the building in order that they might not be suffocated. The loss to the structure was not heavy, but some valuable furniture and curios belonging to Dr. Irwin, the former superintendent of the hospital, were damaged.

BOSTON VITAL STATISTICS IN NOVEMBER.—A recently published monthly bulletin of the Boston Health Department for November, 1915, contains a statement of the mortality rates of this city for that month and for the first eleven months of the year as compared with similar periods in the past.

"Figures for the first eleven months of the year indicate that the rate will be less than six per 100,000, which is probably lower than ever reached by New York, Chicago, Cleveland, Philadelphia, St. Louis, Pittsburgh or Baltimore. Boston's rate from 1906 to 1910 per 100,000 population was 16; from 1911 to 1913 it was 9.2. The figures for last year were 9.2."

"For the four weeks ending Nov. 27, Boston had 800 deaths from various causes reported, as against 848 in the corresponding period of last year. Deaths under one year in the forty-seven weeks from Jan. 2 to Nov. 27 were 1812, as against 1804 for the corresponding period of 1914. The number of deaths reported in the same period was 10,621, as compared with 10,445 for the corresponding forty-seven weeks of last year."

HOSPITAL BEQUESTS.—The will of the late Ellen Channing, of Boston, which was filed in the Norfolk probate court on Dec. 20, contains bequests of \$2000 to the Channing Home, Boston, and \$5000 to the Massachusetts General Hospital for the provision there of a free bed.

SCIENTIFIC MEETINGS IN NEW ENGLAND.—During the current convocation week there have been held in New England several meetings of national scientific societies affiliated with the American Association for the Advancement of Science, which is holding its sessions at Columbus, Ohio. From December 28 to 30 the Association of American Anatomists met at New Haven, Conn., under the presidency of Prof. G. Carl Huber of the University of Michigan. In Boston, from December 27 to 30, were held the meetings of the American Physiological Society, under the presidency of Prof. Walter B. Cannon of the Harvard Medical School; the American Society of Biological Chemists, under the presidency of Professor Walter Jones of the Johns' Hopkins University; and the Society of Pharmacology and Experimental Therapeutics, under the presidency of Dr. Torald Sollman of Western Reserve Medical School.

WORK OF THE ADAMS NERVOUS ASYLUM.—The recently published thirty-eighth annual report of the managers of the Adams Nervous Asylum, recording the statistics of patients treated in that institution during the past year, calls attention to the charity administered by its trustees, whose extent and purpose is perhaps little realized by physicians in Massachusetts.

This institution provides fifty beds for residents of Massachusetts, of both sexes, who are suffering from nervous troubles, who are not insane and who may reasonably expect to be benefited by residence in the institution. Alcohol and drug habitués are not desired. Sufferers from chronic organic spinal disease are so unlikely to show improvement from a few months' stay there that they are not apt to be received. Patients suffering from hysteria, psychasthenia (or neurasthenia) are received and a large number are recovered or improved during a three or four months' residence.

The most common misapprehension (and a very natural one) regarding the scope of this institution, is that insane patients are received there, or that it is a place where a compromise may be made so that a patient needing restraint may avoid being sent to an insane hospital. This is an error, for under the terms of Mr. Adams' will no insane person may be treated there. In fact, it is the only institution in the state that receives nervous patients that is prohibited from caring for the insane.

In recent years 75% of the patients have been treated without payment, or at a rate much less than cost. The remainder pay moderate sanitarium prices. The institution is not a home, nor a convalescent hospital in which patients are received to recover from operations or illness. While there are thirteen beds for men, it often happens that there are not applicants enough to keep them occupied.

Miscellany.

INCREASING COST OF DRUGS.

In the issue of the JOURNAL for December 23, we again commented on the continuing rise in cost of a large number of standard drugs and preparations. During the past week this rise has continued, and the following report from New York on December 16 announces the highest rate on record for opium and other products.

"Notwithstanding an acknowledged decrease of 50% in the consumption of narcotics in the United States during 1915, owing to the restrictive influences of the federal Harrison Anti-Narcotic law, which went into effect March 1 last, prevailing prices for ordinary druggists' quality gum opium stand at \$11 per pound, the highest figure on record.

"The upward movement in opium has become particularly pronounced of late, and the extreme levels which have been attained are primarily due to the serious Balkan complications, which prevent all shipments of Macedonian gum at a time when this market is cut off from all supplies from Turkey, that country being able to ship its goods to Germany and countries in the Tenth alliance only.

"To complicate and intensify further the general feeling of uncertainty as to this drug, it has just become known that the Turkish crop will probably be not more than fifty per cent. of the 1914 yield, which amounted to 8000 cases. The indicated yield of not more than 4000 cases of medicinal opium from Turkey will be the smallest Turkish opium crop harvested since 1907, and crop statistics indicate that only in ten years out of the past half-century have smaller crops been gathered.

"At the opening of 1915, druggists' quality gum opium in case lots was obtainable in the New York market on the basis of \$9.00 per pound. A downward movement set in during March and April under inadequate absorption and heavy receipts from abroad, until a \$7.50 basis was reached for the gum, \$11.00 for the powdered and \$11.50 for the granular. The turn in the opium situation has been reached, however, and purchases of all sorts of narcotics by the belligerents in Europe have assumed enormous proportions.

"The underlying reasons for the present base of \$11.00 for medicinal gum opium is not hard to trace in view of the almost complete cessation of imports, owing to the siege of Constantinople and the shutting off of the Macedonian supplies.

"Realization on the part of all domestic handlers that the cutting off all supplies from abroad renders existing opium stocks impossible of replacement, keeps the various narcotics in a strong position, morphine sulphate being maintained at \$5.50 and \$5.80, morphine acetate at

\$7.15, morphine alkaloid at \$7.15, and morphine hydrochloride at \$5.00 and \$5.80, while codeine alkaloid is held at \$8.60 an ounce, codeine acetate, hydrochloride and nitrate at \$7.80, codeine phosphate and salicylate at \$6.55, and codeine sulphate and hydrobromide at \$6.95. Manufacturers of the above derivatives may again be forced to arbitrarily revise their quotations in order that they may bear their approximate proportion of cost to the newly established values of sulphate of morphine and codeine.

"According to statistics released by the Government, opium stocks in the United States are shrinking at the rate of \$90,000 and \$100,000 worth per month. The stock of opium containing 9 per cent. and over of morphia in our bonded warehouses on October 1, 1915, amounted to but 47,189 pounds of the value of \$205,680, comparing with 67,687 pounds of the value of \$293,658 on Sept. 1, 1915, and 92,997 pounds of the value of \$394,088 on October 1, 1914. The imports of opium containing 9% and over of morphia for the nine months ended Oct. 1, 1915, amounted to but 298,237 pounds of the value of \$1,436,816, which contrasted with 271,926 pounds of the value of \$1,210,274 in the corresponding nine months of 1914, and 532,575 pounds of the value of \$2,315,978 for the corresponding period in 1913. The great bulk of the gum, 262,328 pounds, was received from Turkey, only 27,253 pounds having been received from Great Britain and 8636 pounds from other countries during 1915.

Latest despatches received here from Salonica state that the prices of opium have increased considerably because the arrivals from the producing districts had been stopped for an indefinite time on account of the Bulgarians occupying the different centres of production and because such opium would now be considered the product of an enemy country. Practically all the producing centres of Macedonia have been ravaged by the Bulgarian invasion, and the sowing of seeds has not been made under normal conditions.

"Morphine and codeine, though in unabated demand from the belligerents, have not advanced commensurately with the rise in crude opium. Just how extensive this export movement in the narcotics is, it is difficult to ascertain in the absence of official statistics. The exports of crude opium to Europe in the first nine months of the 1915 calendar year, however, amounted to 34,357 pounds of the value of \$176,569, against practically none in previous years.

"Manufacturers of bromide preparations have just announced advances of 90 to 100 per cent. over and above their previous quotations, owing to the continued scarcity of potash. The newly established basis for granular bromide of potash is \$5.50 per pound, against a previous quotation of \$2.50 per pound, while for crystallized bromide of potash \$5.60 per pound is asked against

a previous quotation of \$2.60 per pound. The advances in other bromide preparations have amounted to from \$1 to \$2 per pound, the newly established price for strontium bromide being \$3.50 and \$3.52, against the previous quotation of \$2.50, while bromide of soda was advanced to \$4.50 against the previous figure of \$2.50, and bromide of ammonia was raised to \$4.50 per pound against the previous figure of \$3 per pound. Among the other potash compounds which have been subjected to advances within the past few days are permanganate, which has been raised to \$1.60 and \$1.75 per pound; U. S. P. bicarbonate of potash, which was advanced from 65 cents to 70 and 75 cents per pound; and sulphide of potash, which is 2 cents higher, at 35 and 37 cents per pound. So far as first hands in potash materials are concerned the most important development was the announcement of a 5 cents advance in the contract price for chlorate of potash, following which manufacturers withdrew from the market.

"Another of the interesting phases of the general situation as regards the exportation of explosive materials has been the greatly enhanced values being asked by crushers of castor beans. Announcement of another two cents flat advance has just been made, and quotations are now given as 14 $\frac{3}{4}$ cents per pound for standard grades in barrels, 15 cents for 'A A' and 16 cents for 'Crystall.' Aside from the demand for castor oil as a high-class lubricant for war purposes, the factors operating for the advance have been the great diminution in shipments of the raw materials, castor seed and castor nuts, from India. Private advices received here indicate that more than twenty-two vessels out of a total of thirty sailing from Indian ports have been requisitioned by the British government. Not only does this have a vital effect on the very backbone of the domestic production of the article, but taken in conjunction with the fact that English castor oil factors have been forced to operate their plants on something like fifty per cent. of a normal schedule, it is little wonder that prices reflect the abnormality of underlying conditions."



THE CONTROL OF DIPHTHERIA.

IN the monthly bulletin of the Massachusetts State Department of Health for November, 1915, appears a leading article on the control of diphtheria, emphasizing the importance not only of prompt treatment of actual cases, but of the judicious immunization of susceptible individuals during times of epidemic. This article, after noting the fact that during the past year there have been in Massachusetts 639 deaths from diphtheria, continues as follows in descrip-

tion of the value of the Schick test in the determination of individual susceptibility to diphtheria infection:

"A new and useful aid has been put into our hands by the laboratory. It has come as the result of the studies of Professor Schick of Vienna. From a long series of experiments he has devised a simple and safe test, which shows whether a given individual is susceptible to diphtheria or not. This will be invaluable in many ways.

The results of its use are already apparent. We are now reasonably certain that 80% of the new-born, 50 to 60% of children, and 90% of the adults are naturally immune from diphtheria. This throws new light upon the spread of the disease and explains why only certain persons take diphtheria even when exposed to it. This test will show whether a person has sufficient antitoxin in his blood to overcome an infection with diphtheria bacilli.

Some of the other uses of the Schick test can be summarized as follows:

1. It will enable the practising physician to diagnose doubtful membranes of the throat.

2. It will enable us to separate the susceptible from the non-susceptible individuals who have been exposed to diphtheria.

3. It will enable us to administer antitoxin to those only who actually need it.

4. It will enable us to prevent the accidents due to serum sickness, for we can determine by the use of this test whether a larger amount of antitoxin serum would have any ill effects.

5. It will enable us to lessen the yearly expenditure for unnecessary antitoxin.

6. It will enable us, when diphtheria bacilli are demonstrated in the throat of an apparently well person, to determine whether this person is coming down with the disease or whether he is a "carrier."

It will be seen from these uses that the Schick test has the possibility of a wide range of usefulness."

In order to familiarize the profession and local health authorities with the nature of this test, Dr. Milton J. Rosenau, director of the antitoxin and vaccine laboratory of the State Department of Health, has prepared the following description of the Schick reaction, which is also published in the bulletin.

"The Schick reaction is a skin test used to determine whether the individual examined is immune or susceptible to diphtheria.

The Schick test is made by injecting a small amount of diphtheria toxin into the skin. The amount injected is one-fiftieth of a minimum lethal dose for a 250-gram guinea-pig. The injection must be made *into* and not under the skin. The toxin is diluted with salt solution so that the correct amount to be injected is contained in just 0.1 cubic centimeter. Use a good

1 cubic centimeter tuberculin syringe graduated in tenths and a fine platiniridium or steel needle. The operator should be skilled in the intraeutaneous method of injecting.

If the blood of the individual tested contains diphtheria antitoxin there will be no reaction at the site of the injection, for the reason that the toxin is at once neutralized by the antitoxin. The absence of reaction, therefore, signifies the presence of antitoxin; such persons are immune to diphtheria; they may, however, become bacillus carriers. The presence of reaction indicates the absence of antitoxin; such persons are susceptible to diphtheria.

If the injection has been properly made, a small wheal-like elevation appears, which shows the distinct markings of the openings of the hair follicles. This distention persists for two or three minutes.

A *positive* reaction appears in from twenty-four to forty-eight hours, as a distinctly circumscribed area of redness and slight infiltration, which measures from 1 to 2.5 centimeters in diameter. The redness increases in intensity during the next three or four days, persists for another week, and on fading gradually gives place to a brownish pigmentation, which always shows superficial scaling. The true reaction is characteristic of the irritant action of toxin on tissue cells when there is no antitoxin to protect them. In the case of a negative reaction, which indicates an antitoxin immunity to diphtheria, the skin remains normal in appearance.

A *pseudo-reaction* is seen occasionally in older children and in adults. This is not due to the irritant action of toxin, but is an anaphylactic response of the skin to the protein substance of the diphtheria bacillus present in solution in the broth used in making the toxin. Such a reaction can also be obtained with a dilution of the autolysate of the diphtheria bacillus, in which no toxin is present. The pseudo-reaction can generally be distinguished clinically from the true reaction; it appears earlier, is less sharply circumscribed, and usually disappears in from three to four days. It is characterized by a central area of redness of varying size, surrounded by a secondary areola. On fading it leaves only a faintly pigmented area, which soon becomes invisible. It will be safer, for those insufficiently experienced, to regard pseudo-reactions as true reactions.

It is important that the toxin be kept cold (on the ice), and it should be used within seventy-two hours after the date of preparation, which is marked on the label.

Note.—The department is not yet prepared to send out the materials for the Schick test for general distribution. For the present, arrangements can be made for the application of the test through the state district health officer of any particular district."

WORK OF THE UNITED STATES PUBLIC HEALTH SERVICE.

THE recently published annual report of the Surgeon-General of the United States Public Health Service records the largest amount of work performed in the history of that organization. Since the passage of the law of 1912 the public health functions of the service have materially broadened, thereby increasing greatly its usefulness to the American people. Throughout the report the economic importance of disease prevention is made apparent to the reader.

Perhaps the most important achievement of the year was the discovery that pellagra is a deprivation disease, resulting from a faulty diet containing an excess of carbohydrates. While the final experiments which led to this discovery have only recently been completed, the conclusion itself is the culmination of investigations extending over a period of seven years. The work has consisted of epidemiological field studies, actual feeding experiments conducted at numerous places in Georgia and Mississippi, and experimental research at Spartanburg, South Carolina, and other places.

A new national quarantine station was opened at Galveston, Texas, and the control of the Boston station was transferred to the Public Health Service. A great reduction in immigration has been observed during the year, with a corresponding increase in the number of aliens certified. At the port of New York, the percentage has risen from 2.29, previous to the development of the European conflict, to 5.37 since that time; this increase largely being due to the fact that with the decreased immigration more time can be devoted to the examination. The number of cases treated at Marine Hospitals and relief stations exceeded 55,000, 15,000 of which were hospital patients, a considerable increase over previous years. The Coast Guard cutter *Androscoggin* was fitted out as a hospital ship and now affords relief to deep sea fishermen on the Banks of Newfoundland.

On the occurrence of plague at New Orleans, the first outbreak upon the Gulf seaboard, the state and local health authorities requested the Public Health Service to take charge of the situation. Extensive rat-proofing and other anti-plague measures were undertaken, resulting in the eradication of the disease from among human beings, and the practical extermination of the rodent infection.

Great reduction in the incidence of malaria was obtained in localities where surveys were conducted. Drainage projects, rice culture studies and the conditions surrounding the impounding of water for power purposes were investigated in order to eradicate as far as possible the disease in these areas. Scientific investigations of malarial infection showed that in the latitude of this country the most important agent in carrying the infection through the winter season

is man, and not the infected, hibernating, Anopheles mosquitoes, as was previously supposed. From the standpoint of prevention this is a discovery of considerable value.

Studies of occupational diseases and industrial hygiene were instituted at several places during the year. A survey of the industries of Cincinnati was made to determine the cause of the prevalence of tuberculosis among industrial workers. The investigations relating to the migration of persons suffering from tuberculosis were completed. Upon the request of the health authorities of five states, the organization and operations of the respective boards of health were studied and recommendations advanced for improvement in the powers and duties of these bodies. The health organizations of several cities were likewise investigated. Investigations of the pollution of streams and the examination of shellfish were also conducted.

Trachoma was combated in the Appalachian Mountains, where it is most prevalent, over 12,000 cases being treated. Surveys in certain states during the year showed that the disease is not an uncommon infection. Rural sanitation work was conducted in six different states, and everywhere resulted in the reduction of typhoid and other communicable diseases. Public health laboratories for the prevention of the interstate spread of disease were established at Chicago, Seattle, and numerous railway centers. Additional duties have been imposed upon the Service by extension of relief benefits to the newly organized Coast Guard and the physical examination of seamen applying for the rating of "able seaman." For this reason, and because of the greatly increased health functions of the Service, an increase in the commissioned personnel is recommended. An additional building for the Hygiene Laboratory and the establishment of a National Leprosarium for the proper segregation and care of cases of leprosy are also recommended.

Correspondence.

AN ENGLISH AUTHORITY ON EPISIOTOMY.

BOSTON, Dec. 24, 1915.

Mr. Editor: In yesterday's issue of the JOURNAL, you published an interesting article by Dr. Williams on episiotomy. This operation was also discussed and recommended by Dr. John Phillips in an article in the issue of the *Lancet* for November 27, 1915. Without expressing my own opinion about the advisability or indication for this procedure, may I call your attention to the following letter upon the subject which appeared in the issue of the *Lancet* for December 4. In this letter Dr. Spencer comments in part as follows on Dr. Phillips' article and upon episiotomy as an operation.

"I hope that your readers, before performing it, will note the many opinions which have been expressed against it. Dr. Phillips says: 'Parvin was one of the earliest advocates of the operation in America.' It seems to me that in the 1905 edition of

his 'Science and Art of Obstetrics' Parvus advocates it with faint praise. This is all he says about it in ordinary type:

"Episiotomy. If a serious tear of the perineum seems inevitable, many advise that an incision or incisions be made to prevent this accident. This practice, though generally credited to Michaelis, 1810, was recommended by Ould, 1742."

"In small type he goes on to say:

"Opinions differ as to the necessity for incisions, and also on the part of those who approve of the operation as to where they should be made. The late Dr. A. H. McClintock stated that he had so often seen the perineum escape laceration where this accident seemed inevitable, he was led to doubt the possibility of recognising the cases in which incision is an absolute necessity. . . . Tarnier states that the incisions do not always prevent even quite extensive tears, and they may leave deformity and a painful cicatrix, or the duct of one of the vulvo-vaginal glands may be divided and a fistula result. . . . He cautions against episiotomy unless it is quite indispensable, for he has sometimes seen the incised parts covered with eschars and become the medium of grave infectious accidents. Deloore states that he accepts in extreme cases the slight operation, but in ordinary cases it is preferable to have a median rent which cicatrizes uniformly than two external ones which result in deformed cicatrices."

"Dr. Parvin quotes two authors only, Dr. Broomall and Dr. Manton (whose names as obstetrical authorities are unknown to me), as favoring the operation, but sums up the matter in these words:

"It may be stated that episiotomy will very seldom be plainly indicated, and in private practice will rarely be done."

"Dr. Munro Kerr says:

"It is an operation which is rarely required."

"Dr. Dakin says of episiotomy, whether unilateral or bilateral:

"This will possibly enable the head to pass the vulva more rapidly, but that is all that can be said for it. On the other hand, it is in the first place never certain that laceration will occur at all and the cuts may be useless and, what is more, afford an entrance to septic matter. In the second place, laceration may occur even when episiotomy has been done. In the third place, a tear made by the head, if properly sutured, heals most satisfactorily even when it extends into the rectum, and in these severe cases episiotomy would be useless. It is therefore not to be recommended under any circumstances unless a dense cicatricial condition of the perineum is found, when possibly some harm might be averted by a central incision carried as far as the sphincter if necessary."

"Having given a few of the adverse opinions of obstetricians of great experience, with whose views I entirely agree, I may add that episiotomy incisions sometimes extend and, dividing the fascia and levator ani, give rise to rectocele of the most intractable kind. I have such a case under my care at the present time.

"I am, Sir, yours faithfully,

HERBERT R. SPENCER, M.D., Lond."

Dr. Spencer may surely be regarded as a distinguished English authority on obstetrics and gynecology and in consideration of the advocacy of episiotomy by Dr. Williams and Dr. Phillips, it seems fair that Dr. Spencer's expert opinion, and others which he cites, should also be considered.

Very truly yours,

"OBSTETRICUS."

SCHOOL FOR HEALTH OFFICERS.

SPECIAL LECTURES IN JANUARY.

All lectures will be given from five to six o'clock on the dates specified and in the amphitheatre of Build-

ing E of the Harvard Medical School, unless otherwise indicated. All lectures will begin promptly on the hour.

January 4. "Oral Prophylaxis" (3 lectures). Dr. W. H. Potter, Professor of Operative Dentistry, Harvard Medical School.

January 6. "Infant Mortality" (3 lectures). Dr. John Lovett Morse, Associate Professor of Pediatrics, Harvard Medical School.

January 10. "Venereal Prophylaxis" (2 lectures). Dr. Hugh Cabot, Assistant Professor Genito-Urinary Surgery, Harvard Medical School.

January 11. "Oral Prophylaxis." Dr. W. H. Potter.

January 12. "Venereal Prophylaxis." Dr. Hugh Cabot.

January 13. "Sanitary Law" (6 lectures). Prof. Eugene Wambaugh, Professor of Law, Harvard Law School.

January 14. "School Hygiene" (2 lectures). Dr. T. F. Harrington, formerly Director of Hygiene, Boston Public Schools.

January 18. "Infant Mortality." Dr. John Lovett Morse.

January 19. "Oral Prophylaxis." Dr. W. H. Potter.

January 20. "Sanitary Law." Prof. Eugene Wambaugh.

January 21. "School Hygiene." Dr. T. F. Harrington.

January 24. "Maritime Quarantine" (2 lectures). Dr. S. B. Grubbs, U. S. Public Health Service.

January 25. "Infant Mortality." Dr. John Lovett Morse.

January 26. "Quarantine." Dr. S. B. Grubbs.

January 27. "Sanitary Law." Prof. Eugene Wambaugh.

January 28. "Industrial Hygiene." Dr. T. F. Harrington, Deputy Commissioner State Board of Labor and Industries.

HARVARD UNIVERSITY FREE PUBLIC LECTURES ON MEDICAL SUBJECTS.

The Faculty of Medicine of Harvard University offers a course of free public lectures, to be given at the Medical School, Longwood Avenue, Boston, on Sunday afternoons, beginning January 2, and ending May 7, 1916. The lectures will begin at four o'clock and the doors will be closed at five minutes past the hour. No tickets are required.

SUNDAY AFTERNOONS AT FOUR O'CLOCK.

- Jan. 2. Dr. R. B. Greenough, "Cancer."
- Jan. 9. Dr. W. H. Potter, "Military Dentistry; Experiences in a Three Months' Service in the American Ambulance Hospital, Paris."
- Jan. 16. Dr. R. P. Strong, "Progress in Combating Epidemics of Some Infectious Diseases."
- Jan. 23. Dr. R. B. Osgood, "Orthopedic Problems Presented by the European War."
- Jan. 30. Dr. J. A. Honcij, "Leprosy."
- Feb. 6. Dr. C. M. Smith, "Syphilis."
- Feb. 13. Dr. F. II. Verhoeff, "Some Simple Facts Regarding the Eyes That Everyone Should Know."
- Feb. 20. Dr. W. H. Robey, Jr., "The Value of Physical Examination to the Individual."
- Feb. 27. Dr. C. J. White, "Occupation as a Contributing Factor to Certain Skin Diseases."
- March 5. Dr. W. R. Bloor, "The Role of Fat in the Nutrition of Man."
- March 12. Dr. F. S. Newell, "The Care of Pregnancy." (To women only.)
- March 19. Dr. J. L. Goodale, "Hay Fever and Asthma."
- March 26. Dr. F. W. White, "Chronic Indigestion."
- April 2. Dr. J. R. Torbert, "A Comparison of the Methods for the Relief of Pain in Childbirth." (To women only.)
- April 9. Dr. P. G. Stiles, "The Present Conception of an Adequate Diet."

April 16. Dr. G. B. Magrath, "Death by Accident; Some of Its Causes and How to Eliminate Them." April 23. Dr. H. P. Mosher, "The Management of Foreign Bodies in the Trachea, Bronchi and Esophagus."

April 30. Dr. C. V. Chapin, "What the Individual Can Do to Protect Himself from Infection."

May 7. Dr. R. I. Lee, "The Importance of Physical Examination in Health as Shown by the Examination of Harvard Students."

Copies of this announcement and further information in regard to any of the lectures may be obtained by addressing The Chairman of the Committee on Public Lectures, The Harvard Medical School, 240 Longwood Avenue, Boston, Mass.

NOTICE.

THE MASSACHUSETTS GENERAL HOSPITAL will open a consultation clinic for people of moderate means on Tuesday, January 25, 1916. Every Tuesday and Friday afternoon at 2 P.M. patients referred by their physicians will be received at the Out-Patient Department on Fruit Street for consultation and diagnosis only. These are hours apart from those of the regular Out-Patient clinic.

Physicians are requested, if possible, to accompany their patients. When a physician is unable to accompany his patient, he will be expected to send a letter referring him to the hospital. This letter will be answered and as far as possible the diagnosis given and treatment suggested.

The clinic is designed for the benefit of families with small incomes. Diagnosis has become so complex and expensive in obscure and difficult cases that its cost has become a heavy burden to those who, nevertheless, are able and willing to pay something. It is expected that physicians will not refer to it people of considerable means.

A fee of \$5.00 will be charged. When an x-ray examination is needed, a fee of \$2.00 to \$3.00 will be charged in addition. For certain other laboratory tests charges not to exceed \$1.00 will be made. The \$5.00 admission fee includes more than one visit when these are necessary for a diagnosis.

SOCIETY NOTICES.

ESSEX NORTH DISTRICT MEDICAL SOCIETY.—A Semi-Annual Meeting of the Essex North District Medical Society will be held in Centre Church vestries, corner of Main and Vestry Street, opposite City Hall, Haverhill, Mass., (Tel. 548), Wednesday, January 5, 1916, at 12 noon, sharp.

A paper will be presented upon "The Public Health Nurse as an Educative Factor," by Dr. A. N. Little, Newburyport. (15 minutes.)

The balance of the meeting is devoted to symposium of three papers upon the work of the first Harvard Unit abroad. (20 minutes each) as follows:

"Otological, Laryngological, and Rhinological War Surgery," by Dr. H. P. Mosher, of Boston.

"General War Surgery," by Dr. H. F. Hartwell, of Boston.

"War Medicine," by Dr. F. W. Snow, of Newburyport.

V. A. REED, M.D., President,
J. FORREST BURNHAM, M.D., Secretary.

NEW ENGLAND PEDIATRIC SOCIETY.—The fortieth meeting of the New England Pediatric Society will be held in the Boston Medical Library, Friday, Jan. 7, 1916, at 8.15, p.m.

1. President's Address. A. C. Eastman, M.D., Springfield.

2. "Indigestion with Fermentation," J. I. Grover, M.D., Boston.

3. "The Problem of Ringworm in Children," E. Lawrence Oliver, M.D., Boston.

4. "Results of Open-Air Treatment in Pneumonia." A. R. Cunningham, M.D., Boston.

Light refreshments will be served after the meeting.

A. C. EASTMAN, M.D., President,
RICHARD M. SMITH, M.D., Secretary.

The dates of the meetings for the rest of the year will be: Feb. 4; March 3; March 31; April 28.

HARVARD MEDICAL SOCIETY.—Historical club meeting in the Peter Bent Brigham Hospital Amphitheatre, Tuesday evening, January 4, 1916, at 8.15 o'clock.

PROGRAM.

1. "Sir James Paget and Paget's Disease," DR. E. C. Cutler.

2. "Benjamin Waterhouse," DR. A. K. Stone.

3. Exhibition of books and papers.

Medical students and physicians are cordially invited to attend.

ERNEST G. GREY, M.D., Secretary.

APPOINTMENTS.

NEW YORK HEALTH DEPARTMENT.—In order to carry on the large amount of administrative work heretofore performed by the Deputy Commissioner, DR. John S. Billings, until now Director of the Bureau of Preventable Diseases, has been designated to act as Deputy Commissioner. His place as Director of the Bureau of Preventable Diseases has been taken by DR. Bertram Waters, heretofore Chief, Division of Tuberculosis, in that Bureau. DR. C. D. Martin will act as Chief of the Division of Tuberculosis. The changes are merely official designations by the Board of Health and carry with them absolutely no changes in salary or Civil Service titles.

BOSTON DISPENSARY.—DR. Malcolm Storer has been appointed surgeon-in-chief of the gynecological department. The associate surgeons appointed are DR. Edward L. Twombly, DR. Robert L. DeNormandie, and DR. Stephen Rushmore. DR. A. K. Paine, DR. John B. Swift and DR. John T. Williams have been appointed assistant surgeons; and DR. Raymond S. Titus and DR. Foster S. Kellogg assistants to surgeons.

RECENT DEATHS.

DR. A. MORGAN VANCE, who died on December 9 at Louisville, Ky., was widely known in his community as an orthopedic surgeon. He was president of the Kentucky State Medical Association and a fellow of the American College of Surgeons. He was sixty-one years of age.

BELGIAN PHYSICIANS' RELIEF FUND.

REPORT OF THE TREASURER OF THE COMMITTEE OF AMERICAN PHYSICIANS FOR THE AID OF THE BELGIAN PROFESSION FOR THE WEEK ENDING DEC. 18, 1915.

CONTRIBUTIONS.

Buffalo Medical and Surgical League, Buffalo,	
N. Y.	\$ 5.00
Washington County Medical Society, Calais,	
Me.	25.00
Mr. Leo J. Sys, St. Paul, Minn.	2.00

Receipts for the week ending December 18.....\$32.00
Previously reported receipts.....\$7,873.84

Total receipts.....	\$7,905.84
Total disbursements.....	7,310.04

Balance \$ 595.80

F. F. SIMPSON, M.D., Treasurer,
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